

**THE APPLICATION OF ARTICLES 81 AND 82  
EC TREATY TO SOFTWARE COPYRIGHT  
LICENCES:  
A TOOL FOR MODERATING THE EXERCISE OF  
COPYRIGHT AND FOSTERING THE EUROPEAN  
SOFTWARE INDUSTRY**

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## ABSTRACT

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The 1991 Software Directive was aimed at strengthening and expanding the European software industry, which at the time was anaemic compared to its counterparts in the USA and Japan. It introduced a strong and harmonised software copyright, which afforded software producers legal certainty regarding their author rights; it also encouraged—to a certain extent—innovation by allowing competitors to decompile existing computer programs, particularly popular ones hailing from the USA. But the Software Directive has fallen short of creating an industry competitive on an international level. In 2005, only three of the world's 20 most valuable software companies were based in Europe and there is a growing tendency for European firms to be taken over by US ones. This thesis submits that a significant factor contributing to the software industry's lacklustre performance is that legal protection of computer programs in the EU is too strong; and that vigorous application of EC competition rules to software copyright licences would further promote innovation, lead to greater consumer choice and contribute to the industry's growth. The thesis first discusses the protection available to computer programs under EC law. Even though patent protection for software-implemented inventions is briefly reviewed, the focus is on software copyright as delineated in the Software and Information Society Directives. The Database Directive is also discussed: it is demonstrated that, notwithstanding the Directive's exclusion of software from its subject matter, it is indeed possible for software components to qualify for protection under its scope. The sum of these three Directives is a legal regime overprotective of the software author's rights. Technical protection measures in particular are protected against circumvention to such an extent that both the exercise of user rights and competition are impeded. The thesis proceeds to analyse how software licensing terms are viewed through the prism of Article 81. The main source of guidance on this is the 2004 Technology Transfer Regulation, whose content and shortcomings are discussed at length. The 1999 Regulation on Vertical Restraints, which applies to certain types of software distribution agreements, is also examined. Next, the application of Article 82 to software licences is explored. The vast majority of cases concerning competition law enforcement in the context of copyright licences relate to dominance abuse. The discussion of Article 82 revolves around two main issues. First, abusive licensing terms, such as excessive pricing and tying, dictated by dominant firms; the Commission's decision chastising Microsoft for tying its Media Player to the Windows operating system is the best-known example of such behaviour and is examined in depth. Secondly, arbitrary licensing; the exceptional circumstances under which software producers are obliged to license a computer program are discussed in the light of *Magill* and *IMS Health*. *Microsoft*, which also dealt with the company's refusal to license interoperability information to third parties, stretched the scope of the exceptional circumstances doctrine—it remains to be seen if the CFI will agree with the Commission's view on the issue. Parallels are drawn between the Commission's decision and the *US v Microsoft* judgment, which also dealt with tying and interoperability issues.



## DECLARATION

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I hereby declare that this thesis has been composed by myself and is my own work, which has not been submitted for any other degree or professional qualification.

Charikleia Klasina

## ACKNOWLEDGMENTS

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This thesis would not have been written without the support, financial and otherwise, of my parents. I would also like to express my gratitude to my supervisors, Dr Robert Lane and Professor Hector MacQueen, for their guidance throughout my doctoral studies at the Edinburgh Law School. Thanks should also be extended to Mrs Lorna Paterson, secretary of the Postgraduate Law School, who has always been helpful with administrative issues.

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## ABBREVIATIONS

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Footnotes in this thesis have been formulated according to the 2002 edition of the Oxford Standard for the Citation of Legal Authorities (OSCOLA). Please consult the appendixes to the current 2005 OSCOLA edition for the abbreviation system followed (OSCOLA is available online at [http://denning.law.ox.ac.uk/published/oscola\\_v2\\_formatted.pdf](http://denning.law.ox.ac.uk/published/oscola_v2_formatted.pdf)). Listed below are abbreviations used in this thesis which do not appear in the OSCOLA appendixes.

|      |   |
|------|---|
| API  | Application programming interface                             |
| CDPA | Copyright, Designs and Patents Act 1988                       |
| DRM  | Digital rights management                                     |
| EPC  | European Patent Convention                                    |
| EPO  | European Patent Office  |
| GPL  | GNU General Public License                                    |
| GUI  | Graphic user interface  |
| IAP  | Internet access provider                                      |
| IIC  | International Review of Industrial Property and Copyright Law |
| JVM  | Java Virtual Machine  |
| MCP  | Microsoft Communications Protocol Program                     |
| MCP  | Microsoft Communications Protocol Program                     |
| NJW  | Neue Juristische Wochenschrift                                |
| OEM  | Original equipment manufacturer                               |
| OS   | Operating system  |
| PC   | Personal computer   |
| RMI  | Rights management information                                 |
| TPM  | Technological protection measure                              |
| USC  | United States Code  |

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# 1 INTRODUCTION

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This thesis explores the relationship between software copyright licences and Articles 81 and 82 EC Treaty. One of the objectives of the EC Treaty is to strengthen the competitiveness of the European industry.<sup>1</sup> The state of the European software industry has important ramifications for the state of the European economy as a whole: companies in any sector benefit from using efficient software tools in the course of their business, whereas a strong software industry creates more employment opportunities for the workforce and higher tax revenues for the Community and its Member States. For these reasons, it is worth exploring how the Community's competition rules apply to software producers and the ways in which the latter exploit their goods: What restrictions are producers subject to when licensing their computer programs? Which practices should they refrain from so as not to distort or eliminate competition in markets in which they are active?

The thesis aspires to offer a comprehensive overview of Community legislation, Commission decisions and ECJ case law on the application of Articles 81 and 82 to software licensing terms and practices. Given that the Community has chosen to protect computer programs by means of copyright, copyright licences are the focus of the following chapters. However, distribution licences for computer programs are closely linked to copyright licences; often, anti-competitive licensing terms are imposed on a distributor (for instance the company which pre-installs software on computers before selling them to end users) and the distributor is obliged to pass on the same anti-competitive terms to consumers. Tying arrangements are a classic example of such behaviour. Due to the close connection between copyright and distribution licences, the latter are also examined throughout the thesis. Chapter 5 in particular, which deals with Article 82, includes a fair amount of discussion on distribution licences.

The thesis first discusses the protection available to computer programs under EC law. Even though patent protection for software-implemented inventions is briefly reviewed, the focus is

on software copyright as delineated in the Software and Information Society Directives.<sup>2</sup> The Database Directive is also discussed: it is demonstrated that, notwithstanding the Directive's exclusion of software from its subject matter, it is indeed possible for software components to qualify for protection under its scope.<sup>3</sup> The sum of these three Directives is a legal regime overprotective of the software author's rights. Technical protection measures in particular are protected against circumvention to such an extent that both the exercise of user rights and competition are impeded. The thesis proceeds to analyse how software licensing terms are viewed through the prism of Article 81. The main source of guidance on this is the 2004 Technology Transfer Regulation, whose content and shortcomings are discussed at length.<sup>4</sup> The 1999 Regulation on Vertical Restraints, which applies to certain types of software distribution agreements, is also examined.<sup>5</sup> Next, the application of Article 82 to software licences is explored. The vast majority of cases concerning competition law enforcement in the context of copyright licences relate to dominance abuse. The discussion of Article 82 revolves around two main issues. First, abusive licensing terms, such as excessive pricing and tying, dictated by dominant firms; the Commission's decision chastising Microsoft for tying its Media Player to the Windows operating system is the best-known example of such behaviour and is examined in depth.<sup>6</sup> Secondly, arbitrary licensing; the exceptional circumstances under which software producers are obliged to license a computer program are discussed in the light of *Magill* and *IMS Health*.<sup>7</sup> *Microsoft*, which also dealt with the company's refusal to license interoperability information to third parties, stretched the scope of the exceptional circumstances doctrine—it remains to be seen if the CFI will agree with the Commission's view on this issue. Parallels are drawn between the Commission's decision and the *US v Microsoft* judgment, which also dealt with tying and interoperability issues.<sup>8</sup>

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<sup>1</sup> EC Treaty Art 3(1)(m).

<sup>2</sup> Council Directive 91/250 of 14 May 1991 on the legal protection of computer programs [1991] OJ L122/42; Directive 2001/29/EC of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the Information Society [2001] OJ L167/10.

<sup>3</sup> Directive 96/9/EC of 11 March 1996 on the legal protection of databases [1996] OJ L77/3.

<sup>4</sup> Commission Regulation (EC) 772/2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements [2004] OJ L123/11.

<sup>5</sup> Commission Regulation (EC) 2790/1999 on vertical agreements and concerted practices [1999] OJ L336/21.

<sup>6</sup> *Microsoft* (Case COMP/C-3/37.792).

<sup>7</sup> *IMS Health GmbH & Co OHG v NDC Health GmbH & Co KG* (C-418/01) [2004] ECR I-5039; Cases C-241 and 242/91 *Radio Telefis Éireann (RTE) & Independent Television Publications Ltd (ITP) v Commission of the European Communities* [1995] ECR I-743.

<sup>8</sup> *United States of America v Microsoft Corp* 231 F Supp 2d 144 (DDC 2002).

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## 2 EC LAW PROTECTION FOR COMPUTER PROGRAMS

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### 1 INTRODUCTION

The purpose of this chapter is to provide a critical assessment of the protection afforded to computer programs under Community law and to question what the impact of this protection has been on the European software industry.

Given that computer programs are protected in the EU as literary works by means of copyright, the 1991 Software Directive is discussed in great detail throughout section 3 of the chapter.<sup>1</sup> In this section I examine the rationale behind choosing copyright rather than patents or a *sui generis* right as an instrument of protection; the expectations that the Directive would allow the European software industry to challenge the supremacy of the US and Japanese industries; the scope of software copyright as delineated in the Directive; and litigation in national courts which has explored the limits of this copyright.

The 2001 Information Society Directive, which harmonised copyright laws in EU Member States, applies directly to computer programs to a very limited extent: it leaves the Software Directive intact and applies to software only in the case of issues which the Software Directive does not regulate.<sup>2</sup> For instance, it regulates the protection of rights management information applied to software, as the Software Directive has no relevant provision. Nevertheless, a few provisions of the Information Society Directive are discussed in this chapter for two reasons. First, because in some cases the Information Society Directive applies *mutatis mutandis* to

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<sup>1</sup> Council Directive 91/250 of 14 May 1991 on the legal protection of computer programs [1991] OJ L122/42 (Software Directive).

<sup>2</sup> Directive 2001/29/EC of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the Information Society [2001] OJ L167/10 (Information Society Directive). According to art 1(2)(a), the Directive leaves intact and does not affect Community legislation on the legal protection of computer programs.

computer programs or helps shed light on certain laconic provisions of the Software Directive; for instance, the latter does not define technological protection measures (TPMs) and therefore the definition given in the former applies by analogy. Secondly, in many cases it is interesting to compare how the same issue is regulated in the case of software and in the case of other copyright works. One such example is the question of whether creating temporary copies of a work infringes the copyright holder's exclusive right to reproduction. Parallels are drawn between the two Directives and the reasons behind adopting different approaches on certain issues are given.

Since its adoption, the Software Directive has been discussed in depth in numerous books and journal articles; one might ask why it is needed to provide yet again another extensive analysis of it here. There are four reasons for choosing to do so.

First, it is essential to explore the limits of software copyright before proceeding to discuss which software copyright licensing terms infringe Articles 81 and 82 EC Treaty. According to the existence/exercise doctrine developed by the ECJ, EC competition law can restrict the activities of copyright holders only when these relate to the exercise—and not the existence—of their copyright. Section 3 of this chapter outlines the existence of copyright protecting software, in other words the exclusive rights of the copyright holders and the limitations and exceptions to these rights.

Secondly, the Software Directive is viewed here under the light cast by the Commission's 2004 Copyright Review Paper.<sup>3</sup> The paper assesses whether there are inconsistencies between the definitions, rules, exceptions and limitations of the various Directives in the field of copyright and related rights—pieces of legislation reviewed include the Software Directive, the Information Society Directive and the Database Directive. It also suggests which adjustments are necessary in order to ensure that any inconsistencies which harm the fair balance between the interests of right owners and users or consumers are mended; and examines whether certain issues which are currently not harmonised (for instance moral rights) hamper the functioning of the internal market and therefore need to be harmonised. The Copyright Review Paper is cited

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<sup>3</sup> Commission staff working paper on the review of the EC legal framework in the field of copyright and related rights, Brussels (19 July 2004) SEC(2004) 995  
<[http://europa.eu.int/comm/internal\\_market/copyright/docs/review/sec-2004-995\\_en.pdf](http://europa.eu.int/comm/internal_market/copyright/docs/review/sec-2004-995_en.pdf)> (Copyright

throughout the chapter, as it offers new angles of interpretation for some Software Directive provisions and also indicates discrepancies between the Software and Information Society Directives (for instance the different level of protection afforded to TPMs applied to software and TPMs applied to other types of literary works) . This chapter explores the reasons behind these discrepancies and any problems they create. Discrepancies between the Software and Database Directives are explored in chapter 3 of the thesis.

The third reason for carrying out a detailed analysis of the Software Directive is to ask whether the Software Directive has kept its first promise (declared in its preamble) to introduce a comprehensive and legal certainty-inducing system of legal protection for computer programs. National case law on software copyright infringement is discussed and weaknesses or omissions in the Directive's provisions are located.

Last but not least, discussing the Directive extensively sets the scene for asking in section 5 of the chapter whether it has delivered its other promise: that of making the European software industry more competitive. Has the Directive's mixture of strong copyright and facilitation of interoperability been sufficient? This question lies in the heart of the whole thesis. If the Directive has failed to deliver its promise, then it becomes clear that rigorous enforcement of competition rules in the field of software licensing is of crucial importance to the future of the software industry.

Section 5 looks not only at the effect of the Software Directive on the European industry, but also at other factors which influence its performance. Obstacles in the movement of software-related goods and services within the internal market, the choice of software producers to diversify or specialise, the entrepreneurial climate in Europe and the availability of public and private funding for software ventures are discussed. Differences between market conditions in the EU and the US are pointed out.

Even though this chapter discusses primarily Community protection for software, international copyright law is discussed where relevant, as the EU and its Member States are signatories to all important international copyright treaties. The Berne Convention for the Protection of Literary

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Review Paper) (accessed 13 July 2007). The Paper was open to public consultation until 31 October 2004.

and Artistic Works<sup>4</sup> stipulates the minimum protection that Community law must afford to copyright holders and is mentioned on several occasions, such as in the cases of the national treatment principle and moral rights. The 1996 WIPO Copyright Treaty (WCT) is also considered.<sup>5</sup> It builds on the Berne Convention, providing additional international copyright rules and clarifying existing ones; its adoption was deemed necessary so that international copyright law would adjust to technological developments. The WCT provides that all its signatories must protect computer programs as literary works and is useful for illuminating certain provisions in the Software Directive, such as those dealing with reproduction and exhaustion of the copyright holder's distribution right. Furthermore, the WCT regulates on an international level the protection of TPMs and rights management information applied to literary works, and has resulted in a barrage of laws implementing these issues—in the case of the EU, the implementation came in the form of the Information Society Directive.

Given that the USA is one of the major trading partners of the EU as far as software products are concerned, US copyright protection of software is also discussed throughout section 3 of the chapter and compared to EU law. Of particular relevance is US case law on the protection of software interfaces and the user right to decompile computer programs; and US law on copyright duration and protection against TPM circumvention.

In order to provide a comprehensive picture of the legal protection for software in the EU, section 4 of the chapter looks into the current situation regarding the patentability of computer-implemented inventions. Even though the EU has chosen to protect software solely by means of copyright, it is possible to patent such inventions in Europe. This is because all EU Member States are signatories to the European Patent Convention, an intergovernmental treaty which is not part of the *acquis communautaire* and was not signed within the context of the EU.<sup>6</sup> Section 4 briefly reviews the development of relevant case law by the European Patent Office and national patent authorities and courts—patent grants and refusals have been contradictory and the European Patent Office has gone as far as declaring that computer programs as such (even when not part of an invention) can be patented. The second part of section 4 is an overview of the controversial and eventually failed 2002 Commission initiative to adopt a Directive which

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<sup>4</sup> Berne Convention for the Protection of Literary and Artistic Works (9 September 1886, latest version Paris, 24 July 1971) (Berne Convention).

<sup>5</sup> WIPO Copyright Treaty (Geneva 20 December 1996) (WCT).

<sup>6</sup> Convention on the Grant of European Patents (Munich 5 October 1973) (EPC).



would have made patent policy for computer-implemented inventions a Community competence and would have created greater legal certainty as to the patentability requirements for such inventions.<sup>7</sup>

It should be noted here that, although Community legislators intended for computer programs to be protected by copyright as a separate type of literary work, they have unintentionally provided an additional means of protection for computer programs: case law and commentators have illustrated that it is possible for computer programs or parts thereof to be protected as databases under the Database Directive. This has happened even though the Directive explicitly states that it does not apply to computer programs used in the making or operation of electronic databases. However, this issue is lengthy and complex and will therefore be discussed separately in chapter 3 of the thesis.

Before the substantive part of the chapter begins, section 2 gives a brief introduction on software development and storage; by no means a detailed and thorough one, only adequate for the purposes of the chapter, as many legal provisions will be discussed in the light of the technical realities of how computer programs are developed and used.

## 2 ABOUT COMPUTER PROGRAMS

### 2.1 How computer programs are developed

According to the Oxford English Dictionary, a computer program is ‘a series of coded instructions which when fed into a computer will automatically direct its operation in carrying out a specific task.’<sup>8</sup> The term tends to be used interchangeably with ‘software’, even though the same dictionary defines the latter as ‘the programs and procedures required to enable a computer to perform a specific task, as opposed to the physical components of the system.’ In other words, software is in actual fact a suite of computer programs. However, in this thesis the two terms will be used as synonyms, as this is the norm amongst legal commentators.

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<sup>7</sup> Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions COM(2002) 92 final [2002] OJ C151E/129 (Commission’s Proposal for a Software Patent Directive).

<sup>8</sup> C Soanes and A Stevenson (eds) *Oxford Dictionary of English* (3<sup>rd</sup> edn Oxford University Press Oxford 2005).



The production of these coded instructions requires a laborious and complex process, which starts with defining the function the program has to perform. Then the technical specifications need to be laid out, describing how the program will perform its task; and afterwards flowcharts need to be drawn up, showing the different sub-tasks the program needs to perform and how these sub-tasks will be combined to achieve the final result.<sup>9</sup> Each sub-task, also known as module or routine, is in fact a short program in its own right and many times the programmer implements it by using a short sequence of code taken from existing programs, which may have been written by others. A computer program is rarely written from scratch. It is common practice within the community of software developers to 'borrow' from each other and in fact this is one of the fundamental ways through which software ideas are improved and the art of programming progresses.<sup>10</sup> Also, programmers often have access to libraries which contain various frequently used ready-made modules, which they can incorporate into the program they are developing.<sup>11</sup>

Once the function of the program has been decomposed into modules, the programmer uses a computer language to write the code for each module; the sum of all these pieces of code comprised the source code of the program. A computer is not able to read source code: it can only read object code (also known as machine code), which is binary and consists of a series of two symbols, 0 and 1. Therefore, the source code needs to be compiled or 'translated' into machine code by using a compiler program. Depending on how much a programming language resembles machine language, it is classified as a high or a low level language. A high level language (such as BASIC, C or Pascal) resembles proper English in form and one statement written in it corresponds to many statements in machine language; by contrast, a statement in a low level (also called assembly) language corresponds to one statement in machine language.<sup>12</sup> Another type of programming languages are fourth generation ones (such as PostScript or SQL), which allow the software developer to write the source code more quickly and easily as many of the tasks are automated.

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<sup>9</sup> D Bainbridge *Software Licensing* (2<sup>nd</sup> edn CLT Professional Publishing Ltd Welwyn Garden City 1999) 7.

<sup>10</sup> SR Englund 'Idea, Process or Protected Expression? Determining the Scope of Copyright Protection of the Structure of Computer Programs' (1990) 88 Michigan L Rev 866, 867.

<sup>11</sup> The routines found in such a library are written in object code. Typical examples of library routines are the ones relating to graphical user interface functions, eg routines which create buttons, icons, scroll bars etc.

Once the source code has been compiled into machine code, the programmer runs the program so as to test it, corrects errors (or ‘bugs’ as they are commonly known) and modifies it. This process is called alpha testing and is followed by beta testing, in which the program is made available to selected users or to the clients themselves in the case of bespoke software.<sup>13</sup> More errors will be detected through beta testing and then finally the program is commercially released, accompanied by manuals and other documentation aimed at helping users operate and maintain the software.

## 2.2 Software interfaces

When developers write the source code for a program, their job is not completed by making the program function. As mentioned above, a program is a series of instructions intended to bring about a certain result; and this result cannot be achieved unless the program can communicate with other programs, with hardware and the user. In other words, the program needs to have an interface.<sup>14</sup>

Creating hardware-to-software and software-to-software interfaces (known as non-user interfaces) is a vital part of creating a program, as the latter needs to be compatible with other pieces of software and with the computers on which it will run. Equally important is the creation of the software’s user interface.

In his book *Interface Culture*, Steven Johnson says that ‘[user] interface serves as a kind of translator, mediating between the two parties, making one sensible to the other’.<sup>15</sup> The term ‘user interface’, includes anything regarding either responding to human input or generating

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<sup>12</sup> Bainbridge (n 9) 8.

<sup>13</sup> FOLDOC Free On-Line Dictionary of Computing <http://foldoc.doc.ic.ac.uk/foldoc/index.html> (accessed 30 May 2005).

<sup>14</sup> In recitals 10 and 11 of the preamble to the Software Directive interfaces are defined as the logical and physical interconnection and interaction ‘required to permit all elements of software and hardware to work with other software and hardware and with users in all the ways in which they are intended to function’.

<sup>15</sup> S Johnson *Interface Culture: How New Technology Transforms the Way We Create and Communicate* (Basic Books New York 1997) 14.

information on how to proceed or on how to carry out a specific task the user has in mind.<sup>16</sup> For example, when one uses a word processing program, giving commands or clicking on icons so as to save or print a file are aspects of the program's user interface. Nowadays, most programs have a graphical user interface (GUI) rather than a command line interface; it is much easier to use windows, icons and pop-up menus than to type in commands. In the early 1970s, Xerox released its Smalltalk operating system and, even though the software was not a commercial success, it was the inspiration behind the Macintosh operating system. When Apple released its Macintosh computers in 1984, at a time when IBM personal computers (PCs) dominated the market, Macintosh computers became instantly popular because the software installed in them had a GUI, which was much more user-friendly than the command line interface used for software installed in the IBM computers.

Each one of a program's interfaces could be considered as one of its modules, a sub-task or a number of sub-tasks separate from the modules regarding the functionality of the program. The process of developing the interface is the same as the one used for creating any other module and the programmer may use the same or a different language when developing the interface and the functional part of the software.<sup>17</sup> Also, the same interface may be created by writing different sets of code, which means that programmers can copy another software's user interface without actually copying the code underlying the interface. Such user interface copying practices often result in copyright infringement claims, which are often dismissed by courts—both in the EU and the USA—exactly because the code underlying the user interface has not been copying. This issue is discussed at length in section 3.6 of this chapter.

## 2.3 Operating system and application software

No computer can function without an operating system. It is the first piece of software loaded when we turn on the computer and keeps running in the background while we use application programs, that is self-contained programs such as word processors, spreadsheets and database programs which perform functions directly for the user.<sup>18</sup> The operating system does the

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<sup>16</sup> IJ Lloyd *Information Technology Law* (1<sup>st</sup> edn Butterworths London 1993) 252. This referenced extract does not re-appear in subsequent editions of the book.

<sup>17</sup> *ibid* 252.

<sup>18</sup> FOLDOC (n 13).

‘housekeeping’ in a computer: it performs basic tasks such as recognising input from the keyboard, sending output to the display screen, copying or naming files and controlling peripheral devices (eg disk drives and printers).<sup>19</sup>

A wide variety of operating systems is available. Microsoft Windows, MS-DOS, LINUX and UNIX are some of the most famous ones. MS-DOS, a command line interface operating system installed in IBM and IBM-compatible PCs from the early 1980s, was for a long time the most widely used, but has now been almost eclipsed by Windows. Windows has a GUI and was inspired by the operating system installed in Apple’s Macintosh computers and quickly surpassed it in popularity – in 2003 it had a 90 per cent share in the world-wide market for PC operating systems.<sup>20</sup> As for UNIX, it is not very popular amongst PC users but is the operating system of choice for workstations – ie fast and powerful computers used by software engineers, architects and graphic designers.

The choice of the operating system determines which application programs can run on a computer, as the latter need to be compatible with the former. Even while using an application program, in reality we keep resorting to the application platform all the time in order to perform routine tasks. For example, most application programs do not have their own print facility. Instead, they provide the user with a ‘print’ option, which, when selected, resorts to the operating system. Consequently, whether one prints a text they have typed in or a web page from the internet, it is the operating system that performs the printing task and not the word processor or the internet browser.

## 2.4 Storage of computer programs

Computers have a variety of permanent storage devices. Even though programs may be stored in floppy disks or CD-ROMs, they are typically installed or copied in the computer’s hard disk. Computers also have a read only memory (ROM) where the software that starts up the computer and loads the operating system resides. Once this software is written onto ROM, it cannot be

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<sup>19</sup> Webopedia <<http://www.webopedia.com>> (accessed 30 October 2004).

<sup>20</sup> —‘Same Old Microsoft?’ <<http://www.economist.com>> (accessed 30 October 2003)

removed. In IBM and IBM compatible personal computers the software responsible for starting up (or booting) the computer is called BIOS (which stands for basic input/output system).

Every time the user runs the operating system or an application, the program is copied from the device where it is stored—hard disk, floppy disk or CD-ROM—in the computer's temporary storage area, which is called RAM (random access memory) and has a much bigger memory capacity than ROM.<sup>21</sup> When the user closes the program the copy of the program is destroyed and when the user turns off the computer any data copied in RAM is lost, as RAM requires a steady flow of electricity to maintain its contents. The size of RAM determines how fast a computer is, as every time the user runs an application a portion of its temporary memory is used; if RAM is not big then the more applications are running simultaneously the slower the computer becomes.

### 3 COPYRIGHT PROTECTION FOR COMPUTER PROGRAMS

## 3.1 Background to the Software Directive

Prior to the adoption of the Software Directive in 1991, many discrepancies existed between the forms of legal protection various Member States of the European Community provided for computer programs. Responding to the need to harmonise these different legal regimes and thus prevent distortions in the functioning of the common market, the Commission started in 1985 the legislative process for adopting a Directive that would envisage copyright protection for computer programs.<sup>22</sup>

The Community hoped that harmonisation of the legal protection of computer programs across the common market would not only bring down any barriers impeding the software trade between Member States, but also strengthen the European IT industry on a global level. During the 1980s the USA and Japan dominated that industry sector, in terms of both software and hardware products. Community legislators believed that the formula for a more competitive European IT industry would be a legislative instrument which on the one hand offered legal

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<sup>21</sup> Lloyd (1<sup>st</sup> edn) (n 16) 395.

<sup>22</sup> White Paper 'Completing the Internal Market' COM(85) 310 final, and Green Paper 'Copyright and the challenges of technology—Copyright issues requiring immediate action' COM(88) 172 final.



certainty and protection against piracy to European software producers and on the other allowed the independent creation of competing and complementary products by different industry players (especially small and medium size ones) in the EC.<sup>23</sup> Both these objectives could be served by affording copyright rather than patent protection to computer programs and, at the same time, qualifying this protection by allowing competitors to decompile computer programs so as to be able to create interoperable products. The ability to decompile was crucial for European IT companies: it would allow them to decompile popular software developed in the USA and Japan and use the information derived so as to create new hardware and software which was compatible or competing with the decompiled software.

The Commission proposed copyright rather than patents or a new, *sui generis*, right as means of protection for computer programs. The arguments for copyright protection were strong, whereas choosing either one of the other two options would entail serious disadvantages.

Opting for patent protection would not be wise for two main reasons. By the time the Community decided to create an instrument for software protection, all twelve of its then Member States had acceded to the European Patent Convention (EPC). The EPC specifically excludes computer programs 'as such' from its scope,<sup>24</sup> which meant that EU Member States would only grant patents to computer-implemented inventions, provided they are 'inventions susceptible of industrial application, which are new and which involve an inventive step',<sup>25</sup> a criterion difficult for computer-implemented inventions to meet. Secondly, patents create monopolies and prohibit using the same ideas for developing new products, whereas copyright traditionally protects the expression of ideas and not the ideas themselves. Granting patents to pieces of programs would create obstacles to producing new programs and eventually stifle competition within the computing common market sector. Having said that, in 2002 the Commission issued an ill-fated proposal for a Directive regulating the patentability of computer-implement inventions, which would have made it easier for software developers to be granted patents for some of their products. The proposal is discussed in section 4 of this chapter.

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<sup>23</sup> Recital 3 of the Software Directive stresses that computer program technology are of fundamental importance to the Community's industrial development. The Community's desire to promote the European software industry by means of adopting a Directive for computer programs is expressed in the Proposal for a Council Directive on the legal protection of computer programs COM(88) 816 final-SYN 183 (17 March 1989) (Proposal for a Software Directive) paras 1.2-1.4.

<sup>24</sup> EPC Art 52(2).

<sup>25</sup> *ibid* Art 52(1).

Patent protection aside, the choice had to be made between using copyright or creating a *sui generis* computer program right. The latter option would have the advantage of protecting programs by means of a right specifically tailored to their characteristics instead of stretching an existing IP right designed for artistic and literary works to fit programs under its scope. Nevertheless, copyright was chosen, as the trend already existed amongst Member States and trading partners of the Community to use it for protecting computer programs,<sup>26</sup> while most importantly copyright protected programs would enjoy the benefits of the widely recognised Berne Convention.<sup>27</sup>

When the Commission started the consultations that led to the adoption of the Software Directive, all its then Member States were signatories to the Berne Convention. Any country that accedes to it belongs to a Union and comes under two obligations. First it has to grant artistic and literary works coming under the scope of the Convention a certain minimum of copyright protection; and secondly it has to treat works by authors originating from or residing in another country of the Union in the same way it treats works by authors who are its own nationals—an obligation known as the ‘national treatment principle’.

If the EU decided to protect software by means of copyright, under the national treatment principle envisaged in the Berne Convention software created in the EU would automatically enjoy copyright protection in all states which join the Convention. If, on the other hand, the EU opted for creating a *sui generis* right, that benefit would have been lost; and achieving an international agreement that would provide mutual protection for the new right would definitely have been a laborious process.<sup>28</sup>

Another factor which influenced EU legislators in their decision to afford copyright protection to computer programs was the rationale that had led US legislators to the same choice. In 1976 the US Congress set up the National Commission on New Technological Uses of Copyrighted Works (CONTU), whose task was to examine whether computer programs, databases and computer-generated works should be assimilated into the existing US copyright regime.

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<sup>26</sup> Proposal for a Software Directive (n 23) 7.

<sup>27</sup> See T Dreier ‘The Council Directive of 14 May 1991 on the Legal Protection of Computer Programmes’ (1991) 13 EIPR 319, 320.



CONTU gave a positive answer on all three counts. In the case of computer programs, it found they should be protected by copyright as literal works because they resemble traditional types of copyright works in many ways: their creation requires originality, creativity and imagination—it is only fair that computer programmers are rewarded by copyright just as writers and painters are. Furthermore CONTU argued that, over the centuries, copyright had proved flexible enough to offer protection to a variety of new mediums of expression, such as movies and sound recordings; there was no reason to assume that computer programs would not fit under its framework. The Congress followed CONTU's recommendation and accordingly amended the USC.<sup>29</sup> In the ensuing years, the American software industry blossomed, a fact undoubtedly related to the copyright protection enjoyed by software developers. The reasoning of CONTU and the effect of copyright protection on American software producers had a decisive effect on the adoption of the Software Directive.<sup>30</sup>

It should be noted here that not everyone shares the view that software should be protected by copyright rather than a custom made *sui generis* intellectual property right. It has been submitted that copyright is not suited to software for many reasons. First, unlike traditional copyright works, software is addressed to machines rather than humans. Secondly, certain fundamental copyright principles are at odds with the nature of software: the copyright owner's exclusive rights to reproduce and adapt the work do not prevent users from reading a book but do prevent them from running a computer program; the questions of whether non-literal copying has taken place and what constitutes a substantial part of the work become very awkward when examining an alleged infringement of software copyright.<sup>31</sup> Indeed, sections 3.6.1 and 3.8 of this chapter examine respectively problems arising from the Software Directive's provisions on reproduction

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<sup>28</sup> WR Cornish 'Computer Program Copyright and the Berne Convention' in M Lehmann and CF Tapper (eds) *A Handbook of European Software Law* (Clarendon Press Oxford 1993) 183, 185.

<sup>29</sup> The United States Code (USC) does not state explicitly that computer programs are protected by copyright as literary works. Protection is implied by the definition of computer programs given in 17 USC 101, and by 17 USC 117, which provides for copyright limitations in the case of computer programs.

<sup>30</sup> CONTU's recommendations and their effect on the American software industry are discussed in AR Miller 'Copyright Protection for Computer Programs, Databases, and Computer-generated Works: Is Anything New Since CONTU?' (1993) 106 Harv L Rev 977. See in particular note 9 on page 981 on the effect of CONTU on the EU's decision to use copyright for protecting computer programs.

<sup>31</sup> A Christie 'Designing Appropriate Protection for Computer Programs' (1994) 16 EIPR 486, 486-489. Christie suggests that the appropriate form of protection for software would be a *sui generis* design right. See Christie 493. He also argued against choosing copyright as a means of protection in his 'Australia's Proposals for Computer Software Protection' (1994) 16 EIPR 77.

and adaptation and the divergent judgments that have been delivered by European courts on software copyright infringement cases since the Directive was adopted.

Choosing the means of protection was—relatively speaking—the easy task the Community’s legislative bodies had to tackle; negotiating the scope of copyright protection was by contrast a very difficult one. Defining software user rights became the bone of contention between leading industry players on the one hand and their smaller competitors and consumers on the other. The former argued for strong copyright protection, under which user rights would be very restricted and maintaining and adapting the program would require prior authorisation of the copyright holder; the latter argued for broader user rights, which would also include the possibility of reverse engineering the program.

## 3.2 Object of protection

### 3.2.1 Originality requirement

According to article 1(3) of the Software Directive, ‘[a] computer program shall be protected if it is original in the sense that it is the author’s own intellectual creation. No other criteria shall be applied to determine its eligibility for protection’. Originality is the fundamental requirement which a work must satisfy to be awarded copyright protection. Prior to the adoption of the Directive, the concept was defined differently in UK law and continental legal systems. In both cases, ‘original’ did not mean inventive, novel or unique; instead, it referred to the fact that the work had not been copied from somewhere else. However, the UK had a much lower originality threshold than continental EU Member States.

British courts considered a work original if the author had invested the requisite labour, skill or effort while creating it. This view is shared amongst common law jurisdictions, which place great emphasis on the role of copyright in providing an economic incentive to create works;<sup>32</sup> in the US, courts have traditionally followed the ‘sweat of the brow’ principle, according to which all works which are the result of labour are worthy of copyright protection.<sup>33</sup> The threshold was

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<sup>32</sup> MJ Davison *The Legal Protection of Databases* (Cambridge University Press Cambridge 2003) 16.

<sup>33</sup> At least as far as compilations are concerned, the ‘sweat of brow’ principle was rejected by the US Supreme Court in *Feist Publications Inc v Rural Telephone Service Co Inc* 499 US 340, 111 S Ct 1282 (1991). This case is discussed in chapter 3 of the thesis.

very low and even works such as railway timetables and exam tables were deemed by courts to be original;<sup>34</sup> furthermore, section 9(3) of the 1988 CDPA states that computer-generated works may also qualify for copyright protection. Far from recognising copyright for computer-generated works, continental legal systems had a much higher threshold for copyright subsistence: they required that the author's own personality must be reflected in the work.<sup>35</sup> In the context of copyright protecting software, the Bundesgerichtshof went so far as to find that a computer program would be considered original only if it was individual compared to pre-existing programs and if its arrangement demonstrated that the programmer's ability significantly surpassed the average programmer's ability.<sup>36</sup>

The Directive attempts to strike a balance between the British and German systems. Even though the phrase 'author's own intellectual creation' is reminiscent of continental copyright regimes, the Directive adds that no other originality criteria shall apply, whereas Recital 8 clarifies that the qualitative or aesthetic merits of the program should not be taken into account when judging its originality. Therefore, it is safe to assume that courts should look for more than 'labour, skill or effort', but should not take into account how skilful the programmer was compared to other programmers. The 'author's own intellectual creation' criterion should be construed as requiring two things: First, that the program is not an infringing copy of another program. And secondly, that it is not simply an assortment of existing material (eg modules from a software library or standard modules which programmers often use and which have fallen into the public domain) and is not based entirely on purely routine programming work.<sup>37</sup> The only form of protection available under EC law for computer programs which are simply compilations of pre-existing modules and routines is the one afforded by the Database Directive—an issue which is discussed extensively in chapter 3 of this thesis.

It is worth noting here that the originality criterion set in the Software Directive is repeated in the context of databases in the Database Directive and in the context of photographs in the

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<sup>34</sup> L Bently and B Sherman *Intellectual Property Law* (2<sup>nd</sup> edn Oxford University Press Oxford 2004) 88 and 92.

<sup>35</sup> J Drexel *What is Protected in a Computer Program? Copyright Protection in the United States and Europe* (IIC Studies in Industrial Property and Copyright Law, volume 15, Wiley-VCH Weinheim 1994) 17.

<sup>36</sup> *Inkassoprogram* (Bundesgerichtshof) (1986) 17 IIC 681 and *Betriebssystem* (Bundesverfassungsgericht) (1990) 22 IIC 723.

<sup>37</sup> M Lehmann 'Comment on *Buchhaltungsprogramm*' (1995) 26 IIC 127

Directive harmonising the term of copyright protection (Duration Directive).<sup>38</sup> Interestingly, the UK has implemented the relevant provision of the Database Directive but not the relevant provisions in the Software and Duration Directives.<sup>39</sup> Nevertheless, according to the ECJ's case law on *interprétation conforme*, courts of Member States are obliged to interpret domestic law in the light of the wording and purpose of Community Directives.<sup>40</sup> Therefore, when judging if a particular computer program is original, British courts are obliged to construe the notion of originality in section 1(1) CDPA in the light of article 1(3) Software Directive and apply a higher standard of originality than that traditionally employed by British courts—for instance, computer-generated computer programs would not qualify for copyright protection, since they are not a human author's intellectual creation.

Following the implementation of the Software Directive by the Member States, two trends can be detected as to the originality standards applied by national courts: British courts, given the absence of the 'author's own intellectual creation' criterion in the CDPA, continue to apply the 'skill and labour' originality criterion and disregard the Directive's criterion. On the other hand, continental courts have lowered the threshold and apply the originality criterion as stated in the Software Directive and mirrored in their national copyright laws.

*Navitaire v easyJet* was one of the first judgments in the UK to examine the originality of computer programs after the UK implementation of the Software Directive.<sup>41</sup> In that judgment—which is discussed extensively in section 3.8 of this chapter—the judge applied the 'skill and labour' criterion and made no reference to article 1(3) of the Software Directive. Conversely, in

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<sup>38</sup> Database Directive art 3(1) and Directive 93/98 harmonising the term of protection of copyright and certain related rights [1993] OJ L290/9 (Duration Directive) art 6(1). According to the Commission's consultation on the *acquis communautaire* in the field of copyright and related rights, there is no intention of harmonising the notion of originality for all types of works, such as compositions, films or books, since so far the divergence of originality levels in national laws within the EU has not created barriers to intra-Community trade. See Copyright Review Paper (n 3) para 3.1.

<sup>39</sup> Copyright, Designs and Patents Act 1988 (CDPA) s 3A(2).

<sup>40</sup> Cases 14/83 *Von Colson and Kamann v Land Nordrhein-Westfalen* [1984] ECR 1891, C-106/89 *Marleasing SA v La Comercial Internacional de Alimentación SA* [1990] ECR I-4135, C-91/92 *Faccini Dori v Recreb Srl* [1994] ECR I-03325 and C-192/94 *El Corte Inglés v Cristina Blázquez Rivero* [1996] ECR I-1281. In recent years the doctrine of *interprétation conforme* has been mentioned in Case C-343/98 *Collino & Chiapparò v Telecom Italia* [2000] ECR I-6659; Case C-160/01 *Mau v Bundesanstalt für Arbeit* [2003] ECR I-4791; Case C-212/04 *Adeneler v Ellanikos Organismos Galaktos* [2004] OJ C179/8.

<sup>41</sup> *Navitaire Inc v easyJet Airline Co Ltd and Bulletproof Technologies Inc* [2004] EWHC 1725 (Ch).



*Buchhaltungsprogramm*<sup>42</sup> the Bundesgerichtshof acknowledged that the Software Directive had introduced an originality threshold which was lower than the one previously applied and which German courts should respect in the future.<sup>43</sup> In France, the Tribunal de Commerce Bobigny found in *Computer Associates Intl v SARL Faster* that a computer program is original when a minimum threshold of creativity is satisfied and the program in question contributes something new which involves more than the application of automatic and compelling logic.<sup>44</sup> Given that ‘novelty’ is not a requirement for attaining copyright protection, the court probably referred to the requirement that the program represents a ‘novel’ expression of an idea.

### 3.2.2 Parts of a computer program eligible for protection

What exactly constitutes a computer program for the purposes of the Software Directive? Article 1(1) equates computer programs to literary works within the meaning of the Berne Convention. It does not define what a computer program is because, as the Commission explained in its Proposal for the Directive,

any definition in a directive of what constitutes a computer program would of necessity become obsolete as future technology changes the nature of programs as they are known today.<sup>45</sup>

Instead, it states that the term includes any preparatory design material – such as flow diagrams and program specifications – that led to the development of the program; and according to the Preamble to the Directive, firmware (programs incorporated into hardware) is also protected<sup>46</sup>.

Following the traditional copyright doctrine of the idea and expression dichotomy, article 1(2) of the Directive grants protection to the expression in any form of the program—therefore both the source and object code of the program are protected—but not to ideas and principles underlying the program and its interfaces. In the same spirit, recital 14 of the preamble to the Directive

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<sup>42</sup> Case no IZR 47/91 (Bundesgerichtshof 14 July 1993). For an summary of the judgment see M Lehmann ‘Comment on *Buchhaltungsprogramm* (1995) 26 IIC 127.

<sup>43</sup> For a brief overview of how national courts of continental Member States applied the Software Directive’s originality threshold see E Derclaye ‘Software Copyright Protection: Can Europe Learn from American Case Law? Part 2’ (2000) 22 EIPR 56, 65–66.

<sup>44</sup> No 519/95 (Tribunal de Commerce Bobigny 20 January 1995).

<sup>45</sup> See Proposal for the Software Directive (n 23).

states that logic, algorithms and programming languages (which a programmer uses in the process of writing a program and creating its interfaces) are also not protected by copyright to the extent that they comprise ideas and principles – in other words they are not excluded *per se* from protection but they would rarely qualify for it.

The Directive and its preamble do not offer sufficiently clear guidance as to whether software interfaces are susceptible of copyright or not. When does an interface comprise an idea and is therefore not susceptible of copyright, and when does it comprise the expression of an idea and therefore becomes eligible for copyright protection? User interfaces in particular are often the point of contention in cases dealing with infringements of copyright protecting software, and yet the Software Directive is not of much help on this topic. Furthermore, the Directive does not state whether the structure of a computer program is covered by copyright. The issue of user interface and structure copyrightability and the relevant case law in EU Member States and in the USA will be discussed extensively in section 3.8 of this chapter, which deals with software copyright infringement.

It should be noted that, even though the copyright eligibility of user interfaces is debatable, it is possible to register screen displays and particular icons as designs and thus prevent third parties from copying them. According to the Design Directive, designs are protected for five years from the date of applying for registration and the term of protection may be extended up to 25 years from the date of application.<sup>47</sup> The Directive affords design protection to the appearance of a product which results ‘from the features of, in particular, the lines, contours, colours, shape, texture and/or materials of the product itself and/or its ornamentation’. The Design Directive explicitly provides that the appearance of computer programs is excluded from design protection.<sup>48</sup> However, this provision should be construed as excluding the appearance of the program’s source and object codes and preparatory design materials from the Directive’s scope and not the appearance of the effects of running the program in a computer—and one of the effects is the user interface appearing on the computer screen.<sup>49</sup>

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<sup>46</sup> See recital 7 of the preamble to the Software Directive.

<sup>47</sup> Directive 98/71/EC of the European Parliament and of the Council of 13 October 1998 on the legal protection of designs [1998] OJ L289/28 (Design Directive) art 10.

<sup>48</sup> *ibid* arts 1(a) and (b).

<sup>49</sup> Bently and Sherman (n 34) 614.

As far as non-user interfaces (ie interfaces which allow a program to interact with hardware or other pieces of software) are concerned things are more clear regarding the question of their protectability. To the extent that they comprise source and object code, they are protected by the Directive. Litigation concerning infringement of copyright protecting non-user interfaces typically concerns applications programs in competition with one another or operation systems in competition with one another; operating system producers such as Microsoft often make public interface information that allows other software producers to create interoperable hardware and applications programs,<sup>50</sup> because it is in their interests that many applications are written for their operating system platforms.

### 3.3 Authorship

The Software Directive gives Member States considerable discretion to decide who could qualify for authorship of a program. Domestic legislation must provide that the author will be an individual or a group of individuals; but also, if they so wish, Member States may provide in their legislation for authorship of collective works or for a legal person to be deemed the author of a program.<sup>51</sup>

Unless a special contractual agreement exists, economic rights to a program created by an employee will be exercised by their employer, provided the program was created during the execution of the employee's duties or following the employer's instructions.<sup>52</sup> It is not clear from the phrasing of the article whether this means that the employer is the initial owner of the economic rights to the program or only has a legal license to exercise them.<sup>53</sup> Presumably this issue is left to the discretion of Member States. For instance, in the UK the employer is the first owner of the copyright vested in any works created by employees in the course of their employment.<sup>54</sup>

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<sup>50</sup> Lloyd (1<sup>st</sup> edn) (n 16) 427.

<sup>51</sup> Software Directive art 2(1). Regarding collective works (eg encyclopaedias and anthologies), Art 2(5) of the Berne Convention envisages that they are protected by copyright provided the selection and arrangement of their components constitutes an intellectual creation.

<sup>52</sup> Software Directive art 2(3).

<sup>53</sup> See M Lehmann 'The European Directive on the Protection of Computer Programs' in Lehmann and Tapper (n 28) 163, 168 and Dreier (n 27) 320.



The ownership of moral rights to a program developed by an employee will be governed by domestic law. The Berne Convention provides that, even after the transfer of economic rights, moral rights—the rights of paternity and integrity—still belong to the author<sup>55</sup> which means that the employee could object to any modifications or adaptations to the program if they believe those acts would harm their reputation. This could create problems for the employer, as commercial exploitation of software often involves modifying or improving it; to avoid situations where programmers could veto modifications to their creations, many Member States adopted legislation that grants the employee only limited moral rights<sup>56</sup> or even bans moral rights to software altogether, as is the case in Britain.<sup>57</sup> Moral rights are not harmonised in the EU for any type of copyright works. According to the Copyright Review Paper, the Community does not intend to take any harmonisation steps in this area.<sup>58</sup> It deems that the Berne Convention regulates moral rights sufficiently for the functioning of the internal market not to be affected by differences in national laws regarding moral rights.

Authorship of commissioned software is not regulated by the Directive, which means that, unless Member States provide differently in their domestic law, the author is the person who created the software. Likewise, the Directive remains silent as to who is the author of a computer generated work; Member States are free to decide on this issue.<sup>59</sup>

As already discussed in section 3.1 of this chapter, one of the big advantages of choosing copyright as a means of protection rather than creating a *sui generis* right is that copyright vested in computer programs is protected in all countries belonging to the Berne Union. According to article 3 of the Directive, those who can benefit from protection as authors of literary works under national legislation can also benefit as authors of computer programs. Since all EU

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<sup>54</sup> CDPA s 11(2).

<sup>55</sup> Berne Convention Art 6bis.

<sup>56</sup> See examples of how different Member States dealt with moral rights for software developed under a employment contract in KW Sommerlad 'Intellectual Property Protection for Software in Germany' (1997) 3 CTLR 12, K Metaxopoulos and C Pigaki 'Legal Protection of Computer Programs under Greek Copyright Law' (1994) 5 Ent L Rev E-117, TV Pinto 'Moral Rights under Portuguese Copyright Law' (1997) 8 Ent L Rev 202, and NE Muenchinger 'French Law and Practice Concerning Multimedia and Telecommunications' (1996) 18 EIPR 186.

<sup>57</sup> CDPA 1988 s 79(2)(a).

<sup>58</sup> Copyright Review Paper (n 3) para 3.5.

<sup>59</sup> As far as the UK is concerned, s 178 CDPA defines a computer generated work as one generated by computer 'in circumstances such that there is no human author of the work' while s 9(3) CDPA names

Member States belong to the Berne Union, this means that the Berne Convention principle of national treatment applies to program authors.<sup>60</sup> In other words, authors who are nationals of or reside in an EU Member State or who first made available their programs in a Member State will be subject to this state's copyright law; and all other EU Member States and countries belonging to the Berne Union will recognise and protect the authors' copyrights.

### 3.4 Copyright duration

Software copyright holders who qualify for EU law protection enjoy their rights for a lengthy period of time. Originally, the Software Directive protected the author's copyright for the duration of their life plus 50 years *post mortem auctoris*, or for 50 years from the date the software was made lawfully available to the public, if the author was a legal person.<sup>61</sup> This way, the Directive afforded software manufacturers with the minimum term of protection envisaged in the Berne Convention.<sup>62</sup> However, in 1993 the EU issued a Directive harmonising the term of copyright protection in the Community (Duration Directive), which accordingly extended the term of protection to the author's life plus 70 years or, in the case of works where the author is a legal person, to 70 years from making them lawfully available to the public.<sup>63</sup> The Duration Directive also had a retroactive effect: works protected under national copyright laws on the date the Directive came into force (1 July 1995) benefited from the new prolonged terms.<sup>64</sup> There was no particular policy objective behind adopting such a lengthy copyright term: the Community legislature chose to harmonise national copyright terms by levelling them upwards, and as Germany already had in place a copyright term of 70 years *post mortem auctoris*, the new harmonised term was set very high.

According to the preamble to the Duration Directive, harmonisation of divergent copyright terms in the various Member States was needed so that free movement of goods and services

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the person who did the necessary arrangements for creating the computer generated work as the author of this work.

<sup>60</sup> Berne Convention Arts 3 and 5.

<sup>61</sup> Software Directive art 8, now repealed by the Duration Directive. See recital 15 of the Duration Directive.

<sup>62</sup> Berne Convention arts 7(1) and (3). Art 7(6) provides that countries belonging to the Berne Union may grant longer terms of protection.

<sup>63</sup> Duration Directive arts 1(1) and (3).

<sup>64</sup> *ibid* art 10(2).

was not impeded and competition within the internal market not distorted.<sup>65</sup> Harmonisation could only be achieved by moving copyright terms upwards in all Member States, because ‘due regard for established rights is one of the general principles of law protected by the Community legal order’.<sup>66</sup> The Commission justified the new lengthy protection terms on two bases. First, they would encourage creativity amongst authors. And secondly, they reflected the current life-span of EU citizens, which had increased since the Berne Convention had set the minimum at 50 years plus the author’s lifespan: the term of protection is supposed to provide protection for the author and the first two generations of descendants, and the Berne term was no longer sufficient for this.<sup>67</sup>

The EU is no longer alone in granting such lengthy copyright protection. The adoption of the Duration Directive started a world-wide trend for extending copyright terms under the justification of stimulating creativity and rewarding authors for their efforts. In Australia, the term of protection has been extended since 1 January 2005, as a result of the Australia-US Free Trade Agreement. Copyright works now enjoy a term of 70 years from the end of the year of the author’s death or from the first publication of the work.<sup>68</sup> As far as the USA is concerned, in 1998 the Congress passed the Sonny Bono Copyright Term Extension Act (CTEA). The Act extended copyright duration from 50 to 70 years plus the life of the author; in the case of works made for hire, the term was extended from 75 to 95 years from publication date or was set to 120 years from the date the work was created.<sup>69</sup> Furthermore, the CTEA had a retrospective effect on works created before the Act came into force. For those published before 1976 and still in copyright in 1998, the term was extended to 95 years; for those created by individuals after 1976, the term was extended to the life of the author plus 70 years.

Proponents of the CTEA—the entertainment industry and individual artists lobbied feverishly in favour of it—claimed that aligning US copyright laws with the 1993 Duration Directive was one

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<sup>65</sup> *ibid* recital 2.

<sup>66</sup> *ibid* recital 9.

<sup>67</sup> *ibid* recitals 10 and 5.

<sup>68</sup> (Australian) Copyright Act 1968 ss 33-34. The Act previously provided that copyright lasted for 50 years from of the year the author died or from the first publication of the work.

<sup>69</sup> 17 USC 302(a) and (b) as amended by CTEA, 112 STAT. 2827 PUBLIC LAW 105-298 – OCT. 27, 1998.

of the main reasons why copyright duration in the US should be extended.<sup>70</sup> According to the Directive, if a work originates in a third country which has a shorter term of protection than that provided in the EU, the work will be protected in the Community only for this shorter term. Without the CTEA, American works including software would only be protected in the EU for 50 and not 70 years after the death of their author.

Such long terms of copyright protection have come under severe criticism by academics and some software producers; both argue that overly long terms have a negative effect on the balance between on the one hand protecting the private interests of copyright holders and on the other safeguarding the public interest of facilitating access to creative works.<sup>71</sup> In the case of software, protecting a word processing program for 70 or 95 years from the date of its publication means that by the time it enters the public domain its source code will be of no use to other programmers, as information technology advances very rapidly; and if by then the company that produced it no longer exists, the program's source code will be lost for ever. In this sense, software is very different from other types of literary works. In his book *The Future of Ideas*, Lawrence Lessig illustrates the difference between books and software as far as copyright protection is concerned:

Software is different. As I've described, software is compiled; the compiled code is essentially unreadable; but to copyright software, the author need not reveal the source code. Thus, while an English Department gets to analyze Virginia Woolf's novels to train writers in better writing, the computer science department doesn't get to examine Microsoft's operating system to train its students in better coding.<sup>72</sup>

Lessig proceeds to propose a five year term of protection for computer programs in the US, renewable once, and an obligation on the part of the copyright holder to release the source code to the public once the copyright expires; by contrast, he proposes a fifteen times renewable term of five years for all other types of literary works.<sup>73</sup>

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<sup>70</sup> See CN Gifford 'Note: The Sonny Bono Copyright Term Extension Act' (2001) 30 U of Memphis L Rev 363, 387-394.

<sup>71</sup> Bently and Sherman (n 34) 152.

<sup>72</sup> L Lessig *The Future of Ideas: The Fate of the Commons in a Connected World* (Random House New York 2001) 253.

<sup>73</sup> *ibid* 251-253.

In fact, Lessig acted as chief counsel for the plaintiff in *Eldred v Ashcroft*, the celebrated case which challenged the constitutionality of the CTEA before the US Supreme Court.<sup>74</sup> Eldred, owner of a website which published works that had fallen in the public domain, argued that the retroactive effect of the CTEA violated the US Constitution on two counts. First, it contravened its copyright clause, which states that copyright should be protected for a limited time.<sup>75</sup> According to the plaintiff, the CTEA was one of many consecutive US copyright acts which retroactively extended copyright terms—the aggregate effect of all these extensions was that for many works copyright was being protected perpetually. Secondly, the CTEA threatened the balance between copyright and freedom of speech, the latter being protected under the First Amendment of the US Constitution. The Supreme Court found that no constitutional violation had taken place; nonetheless, the case illustrated the arguments against lengthy copyright terms.<sup>76</sup>

Apologists of lengthy copyright terms—the Commission amongst them—claim that the prospect of a lengthy copyright protection gives a strong incentive to create new works or invest in new works. But many consider this belief ill-founded.<sup>77</sup> It is submitted here that, at least in the context of the software industry, this argument is not valid. The ones who benefit from the current lengthy terms are companies rather than individual programmers who strive to be productive so that they (and their descendants) will receive royalties in the future. It is the employer (ie the software development company) who enjoys the economic rights in a computer program for 70 years plus the programmer's lifetime.<sup>78</sup> And this term of copyright protection is excessively long: software developers would still produce software even if their products enjoyed substantially shorter terms of protection.

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<sup>74</sup> *Eldred et al v Ashcroft* [2003] 123 S Ct 769.

<sup>75</sup> US Constitution Art I(8)(8).

<sup>76</sup> *Eldred v Ashcroft* generated a vast body of literature. See for instance RA Reese 'Copyright Term Extension and the Scope of Congressional Copyright Power—*Eldred v. Ashcroft*' (2004) 7 *The Journal of World Intellectual Property* 5, and PM Schwartz and WM Treanor 'Eldred and Lochner: Copyright Term Extension and Intellectual Property as Constitutional Property' (2003) 112 *Yale LJ* 2331. Lessig chronicles the case (and lays out his polemic against the current copyright terms in place under US copyright law) in his *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity* (Penguin Press New York NY 2004) 213-256.

<sup>77</sup> See criticisms of lengthy copyright terms in the EU in WR Cornish and D Llewelyn *Intellectual Property: Patents, Copyright, Trademarks and Allied Rights* (5<sup>th</sup> edn Sweet & Maxwell London 2003) 378-380, and in the US in Lessig 2001 (n 72) 252.

<sup>78</sup> Software Directive art 2(3).



An argument supporting sufficiently lengthy copyright terms relates, surprisingly, to software licensed under the GNU General Public License (GPL). This type of licences is defined in section 3 of chapter 4 of the thesis; for the purposes of this current discussion, suffice to say that GPLs oblige licensors to disclose the source and object code of computer programs they license. The open source movement, which created and supports the GPL, envisages a world where all software is open source rather than proprietary, where developers freely use and improve upon each other's code, and where copyright terms are—consequently—of no importance and indeed unnecessary. However, for as long as proprietary software continues to exist, it is important to GPL licensors that their computer programs are protected by a sufficiently long copyright term: otherwise, once the short term expired, proprietary companies could appropriate the source code of the program made available via the GPL and proceed to incorporate it into their proprietary programs. The result would be that the code would cease to be available to all for free. However, it is submitted here that the copyright term does not have to last 70 years plus the author's lifetime so as to protect open source software from predatory proprietary software companies. A somewhat shorter term would still serve the purpose.

The information technology industry and consumers in the EU would greatly benefit if a shorter term of copyright protection were to be introduced in the Community. Software producers with big market shares would obviously not favour such a development, as revenues from exploiting their software products would decrease. Nevertheless, if EU law protected software for a shorter period of time and programmers did not have to wait 70 years before they are allowed to decompile the machine code of a program, the quality and quantity of new information technology products would increase. New software would incorporate pieces of code used in older successful programs and consumers would benefit from having a wider range of choice for a particular type of program.<sup>79</sup> However, it is unlikely that copyright protection terms will ever be significantly curtailed in the EU: such a move would require amendment of the Berne Convention, and big software manufacturers would undoubtedly lobby ferociously against reducing the current minimum of 50 year post *mortem auctoris*/publication envisaged in the Convention.

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<sup>79</sup> Conversely, one could suggest that, given how quickly computer programs become outdated, the lengthy term of protection does actually hinder innovation: software developers would not be interested in copying the source code of an obsolete computer program. Cohen Jehoram observes this

### 3.5 Copyright holder's rights

The quintessential right that copyright confers to authors is the entitlement to control the reproduction of their works. Thus the Software Directive gives to those who own the copyright to computer programs the exclusive right to reproduce permanently or temporarily their programs or parts thereof.<sup>80</sup> The term reproduction was not defined in the Directive, though the subsequently introduced WCT does provide some guidance by stating that storage of a protected work in digital form in an electronic medium is a form of reproduction.<sup>81</sup> The Directive stipulates that it is illegal to load, display, run, transmit or store a program if those acts require reproduction; and translating, adapting or altering in any way a program also constitutes copyright infringement.<sup>82</sup>

According to article 4(c) of the Software Directive, copyright holders also have the exclusive right to control any form of distribution (including rental) of the program and its copies. According to the Commission's Copyright Review Paper, the term 'any form of distribution' implies that copyright holders also have the exclusive right to communicate to the public their software and copies thereof.<sup>83</sup> Article 4(c) also states that the right to distribute the program or its copies is exhausted within the Community after the copy is sold by them or with their consent within the Community for the first time. This provision should be read in the light of the WCT, which restricts exhaustion of the distribution right only to fixed copies: therefore, allowing someone within the Community to download a copy of a computer program from the internet does not exhaust the rightholder's distribution right to this copy.<sup>84</sup> The Information Society Directive regulates Community-wide exhaustion in a similar way: the distribution right to tangible copies of a work is exhausted within the Community after the first sale therein, but the first time a work is distributed on-line within the Community (eg an e-book is downloaded

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in the context of industrial designs in his 'Cumulation of Protection in the EC Design Proposals' (1994) 16 EIPR 514, 516.

<sup>80</sup> Software Directive art 4(a).

<sup>81</sup> Agreed statement concerning Art 1(4) of the WCT.

<sup>82</sup> Software Directive art 4(b).

<sup>83</sup> Copyright Review Paper (n 3) para 2.2.1.2. According to the same paragraph, the Commission's plans to amend art 4(c) of the Software Directive so that it becomes clear that copyright owners have the exclusive right of communication to the public.

<sup>84</sup> Agreed statement concerning Arts 6 and 7 of the WCT.



on someone's computer) does not exhaust the right to distribute the work on-line.<sup>85</sup> Returning to the Software Directive, article 4(c) allows copyright holders to control further rental of the copy even after the first sale has taken place.

A decision by the Bundesgerichtshof in Germany has confirmed that copyright holders cannot control further distribution of software copies after these have been put on the market for the first time.<sup>86</sup> The case concerned the right of computer manufacturers – known as OEMs, or else Original Equipment Manufacturers – to resell separately copies of Microsoft operating system programs which they were supposed to sell only bundled with new PCs. These OEM versions are cheaper than the normal, retail versions of Microsoft's programs, and made by replicators who sell them directly or via distributors to computer manufacturers. Contractual agreements between Microsoft, replicators, distributors and computer manufacturers stipulate that OEM versions may only be sold installed in hardware and not individually.

The Bundesgerichtshof based its decision on §69c III of the Urheberrechtsgesetz which faithfully transposes article 4(c) of the Software Directive. It found that Microsoft exhausted its distribution right when it authorised the replicators to make copies of its software and sell it to distributors and computer manufacturers. Microsoft had the right to impose restrictions on the replicators: for example it could forbid them to sell the OEM-versions to someone who would resell them individually and not bundled with software. However, the court found that, once the replicators placed the OEM-versions on the market with Microsoft's consent, the latter could no longer control any further sales of these copies.

Apart from breaching article 4(c) in such an outright way as Microsoft did in that case, software producers very often circumvent the purpose of the provision, which is to allow software products to circulate freely within the common market as well as create a market for second-hand software.<sup>87</sup> The Directive does not prohibit contractual terms restricting or banning the transfer of a license for copies of computer programs; therefore copyright holders typically

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<sup>85</sup> Information Society Directive, arts 4(2) and 3(3) and recital 28.

<sup>86</sup> *OEM-Version* [2000] NJW 3571. See comment on the case in CT Steins 'The Principle of Exhaustion under German Copyright Law: The German Federal Supreme Court's Decisions *OEM-Version* and *Perfume Flacon*' (2001) 109 Copyright World 11.

<sup>87</sup> See relevant discussion in A Katz 'Selling OEM Windows Copies - You Can Do it in Europe' (10 August 2003) <<http://www.the-register.co.uk>> (accessed 22 September 2003).

include them in their licensing agreements with distributors or end users.<sup>88</sup> This way, licensees are free to resell or give away their copies, but in truth no-one would be interested in buying those copies, as any prospective owners would not have the right to use them.

Even though software producers can dictate such terms which are obviously in conflict with the principle of exhaustion for computer programs established in article 4(c) but do not infringe the word of the Directive, these terms might still be deemed unlawful in certain situations. For example, if the copyright holder has a large market share, licence transfer restrictions may have a detrimental effect on competition within the common market and may thus breach EC competition rules.<sup>89</sup>

### 3.6 User rights

Article 5 of the Directive states what the lawful acquirer of a computer program can do with it. The Directive does not elaborate on who the lawful acquirer might be, but the Commission later on explained that the term means anyone who has bought or rented a lawful copy of the program or has the license to use the program or a copy thereof; also anyone who has been authorised by the buyer, renter or licensee to use the program.<sup>90</sup>

#### 3.6.1 Reproduction, translation and adaptation

According to article 5(1) of the Software Directive, the lawful acquirer can reproduce, adapt or alter in any way the program, provided two conditions are met. First, these actions must be necessary for the use of the program in accordance with its intended purpose or for error correction; and secondly, the software licence must not contain any provisions to the opposite

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<sup>88</sup> Some commentators defend the legality of contractual terms restricting or banning the transfer of a software license. See for example B Czarnota and R Hart *Legal Protection of Computer Programs in Europe - A Guide to the EC Directive* (Butterworths London 1991) 60.

<sup>89</sup> G Morgan and A Wilson 'Restrictions on Transfer of Software' (1996) 2 CTLR 82, 86.

<sup>90</sup> Commission report on the implementation and effects of Directive 91/250 EEC on the legal protection of computer programs COM(2000) 199 final (4 April 2000) (Software Directive Implementation Report) 12. The Commission agreed that the definition given by commentators such as Czarnota and Hart was correct. See Czarnota and Hart (n 88) 64.

effect. Recital 18 of the Directive also states that loading and running a lawfully acquitted program or correcting any errors it may have cannot be contractually prohibited.

From these two provisions we can conclude that a copyright owner can restrict the reproduction of a lawfully acquired program, but not the creation of transient copies while running the program.<sup>91</sup> This is because, as explained in section 2.4 of this chapter, any use of a computer program actually requires making a transient copy of it in the computer's RAM—prohibiting transient copies equals prohibiting use of the program. Reproduction restrictions which may be lawfully imposed on the user include terms stipulating that the software can be used only on certain terminals or locations.

The issue of when temporary reproductions infringe copyright vested in a work was the object of heated negotiations in the 1996 Diplomatic Conference which led to the adoption of the WCT.<sup>92</sup> Article 7 of the Basic Proposal for a Copyright Treaty defined the author's reproduction right as including direct and indirect, permanent and temporary acts of reproduction; it also envisaged in its second paragraph an optional limitation to this right.<sup>93</sup> Signatory States to the Copyright Treaty would have the discretion to introduce exceptions allowing temporary reproductions when these are transient or incidental, or when their sole purpose is to make a work perceptible, provided that such reproductions take place 'in the course of use of the work that is authorised by the author or permitted by law.' The main objection to the proposed Article was that it was overly accommodating towards copyright holders. The proposed definition of reproduction was too broad and would severely hinder the use of digital works, which always involves temporary reproduction of the work. This is the case with computer programs, movie DVDs and music CDs, but also with copyright content available on the internet: viewing the webpage where a picture has been published involves the computer user browsing the page and the Internet Service Provider (ISP) caching it—both caching and browsing involve making transient copies

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<sup>91</sup> This interpretation of article 5(1) was confirmed in the Software Directive Implementation Report (n 89) 12.

<sup>92</sup> For a detailed account of these negotiations and the views expressed by the various delegations on the proposed limitations see TC Vinje 'The New WIPO Copyright Treaty: A Happy Result in Geneva' (1997) 19 EIPR 230.

<sup>93</sup> Basic Proposal for the Substantive Provisions of the Treaty on Certain Questions Concerning the Protection of Literary and Artistic Works to Be Considered by the Conference WIPO Document CRNR/DC/4 29 (30 August 1996).

of the webpage and therefore the picture.<sup>94</sup> Further objections were raised regarding the second paragraph of the proposed Article: many delegates argued that its optional nature was not sufficient for limiting the copyright holder's reproduction right. Further, they argued, the proposed exception applied only in the case of transient copies being created in the course of lawful use of the work—the exception was not sufficient for shielding ISPs from infringing copyright laws while creating transient copies (through caching or browsing) of unauthorised copies placed on the internet by third parties. Eventually, owing to the inability of delegates to agree on an amended version of Article 7, the latter was dropped.

The issue of temporary copies was later tackled in the Information Society Directive. Article 5(1) of this Directive applies to works other than software<sup>95</sup> and provides that temporary reproductions which are integral and essential to a technological process do not breach the author's reproduction right, so long as they have no independent economic significance and their purpose is to enable either a transmission in a network between third parties by an intermediary or a lawful use. Unlike the equivalent proposal discussed in the 1996 WIPO Diplomatic Conference, article 5(1) is catering for the interests of ISPs and ensures that they will not be sued for caching or allowing the browsing of illegal copies of copyright works. The Commission intends to align article 5(1) of the Software Directive with art 5(1) of the Information Society Directive, thus imposing more limitations on the software author's reproduction right.<sup>96</sup> The reasoning behind this intention is again to protect ISPs against copyright infringement when internet users download illegal copies of computer programs. However, users of legal copies of computer programs will also benefit from amending the provision: the amended Software Directive provision will clarify beyond any doubt that copyright holders are not allowed to contractually prohibit temporary reproductions of lawfully acquired software.

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<sup>94</sup> 'Caching' is the action of temporary storing downloaded web pages in the computer's memory. As the user jumps from page to page caching allows him or her to go back to a page without having to download it again from the internet. The web browser program used (eg Internet Explorer) compares the dates of the every cached page with the current web page. If the web page remains the same, the cached page is displayed. If the page has changed, the it is again downloaded, displayed and cached. See Computer Desktop Encyclopedia <<http://www.computerlanguage.com/webexamples.htm>> (accessed 19 October 2005).

<sup>95</sup> According to art 1(2)(a) of the Information Society Directive, the latter leaves the Software Directive intact. Arts 4(a) and 5(1) of the Software Directive continue to govern the reproduction right to a computer program and its limitations.

<sup>96</sup> Copyright Review Paper (n 3) para 2.1.3.2.



A question arising from the text of article 5(1) is whether lawful users are allowed to decompile computer programs for the purpose of error correction. Commentators have expressed divergent opinions on this issue.<sup>97</sup> The article states that, in the absence of contractual restrictions, users may translate the program in order to correct errors. As will be discussed in section 3.6.3 of this chapter, decompilation is essentially the translation of the program's object code into source code. Computer programs, especially custom-made ones, often suffer malfunctions, and it is in the user's interest to be allowed to look into the program's source code and attempt to fix any bugs. It is submitted here that article 5(1) does allow decompilation for the purposes of error correction provided that no adverse contractual restrictions exist—the text does not leave any margin of doubt on this. However, licensors typically contractually prohibit decompilation for such purposes and instead offer a maintenance contract along with every software copyright licence.

### 3.6.2 Making back-up copies

Users are allowed to make a back-up copy of a program provided that it is necessary for using the program, a right which cannot be contractually set aside.<sup>98</sup> This right was interpreted very narrowly in the English case of *Sony v Ball*: the High Court found that in the case of software embodied in CD-ROMs the copyright owner may prohibit the making of back-up copies, because the medium is 'robust and cannot be wiped clean' and therefore backing up the program is not necessary for using it.<sup>99</sup> It does not seem likely that other courts will follow this interpretation—CD-ROMs may be more durable than floppy discs (the medium of choice when the Software Directive was adopted) but may still be lost or destroyed. Furthermore, there is a growing tendency to download software rather than buy CD-ROMs embodying it, and in this case the user can justify quite easily backing-up the software. Therefore it is unlikely that the user's right to back-up is in danger.

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<sup>97</sup> Czarnota and Hart believe that that art 5(1) does not allow decompilation for the purpose of error correction: see Czarnota and Hart (n 88) 65. Lai disagrees: S Lai *The Copyright Protection of Computer Software in the United Kingdom* (Hart Oxford 2000) 101. Lehmann believes that issue remains unclear: Lehmann in Lehmann and Tapper (eds) (n 28) 164, 173.

<sup>98</sup> Software Directive arts 5(2) and 9(1).

<sup>99</sup> *Kabushiki Kaisha Sony Computer Entertainment Inc v Ball* [2004] EWHC 1738 (Ch), [2004] All ER (D) 334 (Jul) para 30.

### 3.6.3 Reverse engineering

Reverse engineering is a common industrial practice, which can be defined as a way to acquire know-how about manufactured products.<sup>100</sup> The Directive allows lawful acquirers of computer programs to use two methods of reverse engineering, black-box analysis and decompilation—as in the case of making a back-up copy, reverse engineering conducted under the terms of the Directive cannot be contractually prohibited.<sup>101</sup> Both these methods aim at discovering how the program works and how it was created; they aim at uncovering the elements of the program which are not susceptible of copyright, namely the ideas upon which it was based.

Article 5(3) of the Software Directive deals with the right to perform ‘black-box’ analysis.<sup>102</sup> It provides that users can observe, study or test the functioning of the program so as to uncover the ideas and principles which underlie it. In other words, users can observe screen displays of the program and also run tests: they can input different pieces of data and monitor the results and this way they might be able to determine how the software works.<sup>103</sup> Unfortunately this method is not very effective, especially when attempting to reverse engineer a complex program. Therefore, the Software Directive also allows users to decompile certain parts of the program.

Decompilation is the process of disassembling the computer program’s object code in an attempt to recreate its original source code.<sup>104</sup> It is a process which involves reproducing (the object code) and then translating the computer program (ie translating its object code into source code), acts which violate the copyright holder’s exclusive rights if carried out without authorisation. However, the Software Directive allows users to decompile software if certain conditions are met. Under article 6, users can decompile parts of the program to the extent necessary for

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<sup>100</sup> P Samuelson and S Scotchmer ‘The Law and Economics of Reverse Engineering’ (2002) 111 Yale LJ 1575, 1582.

<sup>101</sup> The user rights to conduct black box analysis and decompile are stated in arts 5(3) and 6 respectively of the Software Directive. Again, according to art 9(1) these rights cannot be contractually set aside.

<sup>102</sup> Black box analysis ‘includes reverse engineering techniques such as line traces, test runs and studying screen displays of hexadecimal object code’. See TC Vinje ‘Compliance with Article 85 in Software Licensing’ (1992) 13 EIPR 165, 171.

<sup>103</sup> BJ Viving ‘The Future of Computer Software in the Reverse Engineering War: Excessive Protection v. Innovation’ (2001) 67 Brooklyn L Rev 567, 571.

<sup>104</sup> A Johnson-Laird ‘Software Reverse Engineering in the Real World’ (1994) 19 Dayton L Rev 843, 876.



developing a new program which will be interoperable<sup>105</sup> with the decompiled one or with other, third programs, but only if decompilation is 'indispensable', ie if black-box analysis failed to provide them with the relevant information needed.<sup>106</sup>

Article 6 is the result of a heated debate that preceded the adoption of the Directive: big software producers wanted to keep the source code of their programs secret for fear of competitors copying it, whereas smaller companies wanted to be able to create software that would be compatible or competitive with existing popular programs. Community legislators were also eager to adopt a decompilation provision: as already noted earlier in this chapter, it would allow European software developers to decompile popular software products hailing from countries with strong IT industries and create interoperable or competing products. It would also be a means of avoiding problems such as the one posed by IBM in the 1980s. In 1980, the Commission found IBM guilty of having infringed Article 82 EC Treaty. IBM, the dominant supplier of mainframe computers at the time, had a practice of refusing to reveal to other hardware producers interface information which would allow them to produce computers interoperable with computer programs tailored to IBM computers (IBM computers being the most widely used ones at the time, most computer programs produced were designed for running on these computers). This refusal was found to be a dominance abuse and resulted in 1984 in the well-known 'IBM Undertaking', which obliged the company to disclose to its competitors interface information necessary for the creation of new products.<sup>107</sup> The desire to protect the European software industry from the type of behaviour exhibited by IBM in the 1980s and thus promote interoperability overcame the objections of big software producers who wanted to be bestowed with strong copyright and article 6 was included in the final version of the adopted Directive. However, as a concession to its opponents, article 6 allows decompilation under strict conditions and only for limited purposes.

First of all, the process of decompilation may only start if the new program already exists, even if it is only in an early stage of its development.<sup>108</sup> Secondly, it may be carried out by the lawful acquirers (for instance licensees) or authorised users (for instance software engineers employed

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<sup>105</sup> Interoperability is defined in recital 12 of the Software Directive as 'the ability to exchange information and mutually to use the information which has been exchanged'.

<sup>106</sup> *ibid* art 6(1) states that decompilation may only take place if it is 'indispensable' for obtaining the interoperability information.

<sup>107</sup> IBM Undertaking, Bulletin of the European Communities 10-1984 para 3.4.1.

by licensees) of the software only if the information necessary for achieving interoperability is not already available to them by the copyright holder.<sup>109</sup> This means that the information must have been made available within the documentation provided along with the program and without demanding an extra fee; if users have to ask for the information or if they find it inadequate or out of date they are free to exercise their decompilation right. And thirdly, decompilation may only be carried out on parts of the program whose source code is required for the new program to be interoperable.<sup>110</sup> This does not mean that the user may only decompile the parts of the program intended by the program's author to be interfaces: users may decompile any part they believe could yield interoperability information.<sup>111</sup>

If the user succeeds in decompiling the program—which is not always the case, given that decompilation is a laborious and difficult process which often fails to reveal the original source code<sup>112</sup> – he or she is not allowed to disclose the information acquired to others, except when necessary for the interoperability of the independently created program.<sup>113</sup> Furthermore, article 6(2)(a) states that the source code derived may only be used for producing an independently created interoperable program. This means that the new program could be one compatible with the original one (for example a new application compatible with the decompiled operating system) or a program compatible with other programs and perhaps competing with the decompiled one (for example a new operating system compatible with existing applications that were written for the decompiled operating system).<sup>114</sup>

In an attempt to pacify opponents of the decompilation right, article 6(2)(c) provides that the new program must not be substantially similar in its expression to the original program or infringe the rightholder's copyright in any other way. Nevertheless, it is not clear what 'substantially similar' means. Even though most of the time an interface can be implemented by different sequences of source code, certain interfaces may only be implemented by a specific

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<sup>108</sup> Software Directive Implementation Report (n 90) 14.

<sup>109</sup> Software Directive art 6(1)(b).

<sup>110</sup> *ibid* art 6(1)(c).

<sup>111</sup> J Huet and J Ginsburg 'Computer Programs in Europe: a Comparative Analysis of the 1991 EC Software Directive' (1992) 30 *Columbia J of Transnational L* 327, 363-364.

<sup>112</sup> Even when decompilation produces the correct source code, the user will still not have access to the preparatory design materials and technical specifications that preceded the writing of the source code, or to the comments that the programmer embedded in the source code.

<sup>113</sup> Software Directive art 6(2)(b).

<sup>114</sup> Commission's Twentieth Report on Competition Policy (1991).

sequence; in this case the source code is not susceptible of copyright and can be copied in the new program.<sup>115</sup>

In a further attempt to safeguard the rightholder's rights, article 6(3) states—perhaps superfluously—that article 6 should not be interpreted in any way that would unreasonably prejudice the legitimate interests of the copyright holder.

A question which has arisen in the context of article 6 is whether it is lawful to decompile a program with the intention of using the information derived in order to create an interoperable piece of hardware, rather than software. It has been submitted that this is not allowed, as article 6 speaks only of interoperable software.<sup>116</sup> However, recital 23 of the Directive says that the exception provided in article 6 aims at making it possible 'to connect all components of a computer system', whereas it is clear from recital 10 that components of a computer system include both software and hardware. A further proof that decompilation for the purpose of creating interoperable hardware should be permitted comes from the Commission's Copyright Review Paper, which states that the purpose of article 6 is 'to ensure the ability of two or more computer hardware devices or software components to connect, exchange information and work together, including those of different manufacturers.' Regrettably, even though the paper recognises that the scope of article 6 is too narrow, it reaches the conclusion that, owing to lack of jurisprudence on the matter, the provision should not be altered.<sup>117</sup>

It remains unclear whether the Software Directive allows decompilation for the purpose of manufacturing interoperable hardware; nevertheless, a software licensing term prohibiting decompilation for this purpose might breach competition law, as it would impede the creation of new products.

Unlike the Software Directive, US copyright law does not have a provision explicitly allowing decompilation. Instead, US courts have been assessing the legitimacy of decompilation relying on the fair use doctrine embodied in section 107 of the USC.<sup>118</sup> According to this provision, four

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<sup>115</sup> Czarnota and Hart (n 88) 82.

<sup>116</sup> *ibid* 85. The opposite view is expressed in Lai (n 97) 100-101.

<sup>117</sup> Copyright Review Paper (n 3) para 2.2.1.3.

<sup>118</sup> For an overview of US law on decompilation and a comparison thereof with art 6 of the Software Directive see Lai (n 97) 109-119.

different factors must be taken into account when determining whether a use of a work constitutes fair use: the purpose of the use, including whether it has a commercial nature, the nature of the copyright work that is used, the amount and substantiality of the part of the work that is used and the effect of the use on the potential market for or value of the work.

The first two cases where the fair use doctrine was used to justify the right to decompile computer programs were *Atari v Nintendo* and *Sega v Accolade*.<sup>119</sup> In both cases the defendants decompiled the plaintiffs' game cartridges so as to manufacture their own cartridges that would be compatible with Atari and Sony's game consoles. Of the two, *Sega* provides a more comprehensive analysis of how the fair use doctrine applies to decompilation. In this case, the court found that Accolade's copying of Sega's computer program (ie the computer game contained in the cartridge), which was a necessary step in the decompilation process, was justified as fair use.

*Sega* held that decompilation for the purpose of creating an interoperable program may constitute fair use—provided the assessment of the four factors in section 107 USC is favourable for the user—but did not answer the question of whether decompilation for the purpose of creating a new competing program may also constitute fair use. It has been submitted that the four factors determining fair use would point at a negative answer: the purpose of the decompilation is clearly commercial, the new program will be in direct competition with the decompiled one and would potentially steal away a market share from it, decompilation involves copying the original program in its entirety and there is a possibility that the new program will be very similar to the original one.<sup>120</sup>

It would seem that the Software Directive is a lot more permissive than US copyright law towards decompilation, as the former allows it for the purpose of creating not only interoperable software but also competing software. However, due to the detailed nature of article 6—as opposed to the broad possibilities of interpreting section 107 of the USC—it can prove more

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<sup>119</sup> *Atari Games Corp v Nintendo of America Inc* 975 F 2d 823 (Fed Cir 1992) and *Sega Enterprises v Accolade Inc* 977 F 2d 1510 (9<sup>th</sup> Cir 1992).

<sup>120</sup> See AR Grogan 'Decompilation and Disassembly: Undoing Software Protection' (1984) 1 Computer Law 1, 10. Miller believes that *Sega* and *Atari* wrongly introduced a decompilation exception under the fair use doctrine. In his view, such an exception is at odds with the traditional American copyright law: no similar exception exists for other types of literary works, the US

restrictive in some ways. For instance, article 6 allows decompilation only for the purpose of creating interoperable or competing software, whereas the fair use doctrine could be used to justify other purposes, such as obtaining access to a non-patented algorithm found within the decompiled software or creating interoperable hardware; *Sega* found that decompilation for achieving interoperability may be allowed, but did not say that this is the only situation where it is allowed.<sup>121</sup> Furthermore, article 6(1)(c) permits decompiling only the computer program's parts whose source code is required for the new program to be interoperable, whereas the fair use doctrine could potentially justify decompiling a program in its entirety; the party which carried out the decompilation could subsequently use all the information derived to create a new program, provided that the later does not infringe the copyright protecting the original program.

### 3.7 Digital rights management systems for software

Software is typically expensive to develop and market successfully, and yet perfect copies of it can be produced and distributed without authorisation for a minimal cost.<sup>122</sup> Therefore software proprietors are keen to protect their products by using a combination of rights management information (RMI) and technological protection measures (TPMs). RMI identifies the software, its copyright owner, the latter's exclusive rights and the rights which lawful users of the software have; TPMs enforce these rights set by the copyright owner or prescribed by law, by impeding access to or reproduction of the software. Often both TPMs and RMI are embedded in a computer program and when they are combined they constitute a so-called digital rights management (DRM) system.<sup>123</sup> This acronym-infested area is by no means new: software has always been accompanied by the text of the licence (appearing on the computer screen at the start of the installation process or every time the user starts up the software) under which it is distributed, whereas software producers have always tried to protect their products against unauthorised access and copying by using mechanisms such as activation codes. However, in recent years RMI and TPMs have generated a lot of discussion amongst academic and industry

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Copyright Act does not provide for it and it severely compromises the software author's copyright. Miller (n 30) 1013-1036.

<sup>121</sup> Lai (n 97) 117.

<sup>122</sup> DS Marks and BH Turnbull 'Technical Protection Measures: The Intersection of Technology, Law and Commercial Licences' (2000) 22 EIPR 198, 198.



circles, as new legislation aimed at protecting them has been introduced and technological progress has allowed the creation of more sophisticated and effective TPMs, RMI and DRM systems.

In the EU, technological measures protecting software were already protected against circumvention by article 7(1)(c) of the Software Directive. However, in 1996 the WCT obliged all members of the Berne Union to safeguard authors against circumvention of TPMs and unauthorised removal of RMI applied to any kind of copyright work. These two obligations, prescribed in Articles 11 and 12 of the WCT, have been implemented in the EU by the Information Society Directive, in the USA by the Digital Millennium Copyright Act (DMCA) which was enacted in 1998 and in Australia by the Copyright Amendment (Digital Agenda) Act 2000.

### 3.7.1 Technological protection measures

A type of TPM system commonly applied to software is activation codes which the user needs to type in so as to install the computer program. For many years, the code would be the serial number of the particular copy purchased by the user and was provided at the time of purchase. Nowadays, users often need to register their copy on-line or by calling the customer services department of the software's manufacturer: the copy's serial number is sent to the manufacturer, the latter checks whether the same copy has been registered before and, if not, the user receives an activation code which he or she must type in so as to complete the installation process.<sup>124</sup> This type of activation can prevent unauthorised users from using copies of the software and can also ensure that users do not install the same copy in more than one computers unless their licences allow them to. Activation codes are often not effective, as unauthorised users can find codes and serial numbers for many popular software packages in hacker websites, whereas 'cracked' bootleg copies which do not require authorisation typically become available soon after a popular program is released on the market.

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<sup>123</sup> PB Hugenholtz, L Guibault and S van Geffen 'The Future of Levies in a Digital Environment' Final Report <<http://www.ivir.nl/publications/other/DRM&levies-report.pdf>> (Institute for Information Law Amsterdam March 2003) (accessed 28 October 2005) para 2.1.2.



A more sophisticated and effective model of technological measure protecting software operates as a 'key and lock' system: one half of the TPM is embedded in the software itself and the other half is found in the hardware which has been designed to 'read' the software. Parts of the software (certain routines) are encrypted or scrambled and the software operates only if the hardware has the 'key' to decrypt or unscramble these parts.<sup>125</sup> An example of such hardware 'keys' are dongles, ie pieces of hardware which users must plug into computers in order to be able to run the encrypted software.<sup>126</sup> At present, authentication chips embedded in hardware, rather than dongles, are the most popular 'key' component in 'key and lock' TPMs.

### **TPM protection in the EU**

Article 6 of the Information Society Directive deals with the circumvention of TPMs applied to all copyright works apart from software and to databases protected by the *sui generis* right created by the Database Directive. As far as TPMs protecting software are concerned, article 7(1)(c) of the Software Directive, which predates the WCT, continues to apply.<sup>127</sup> The provision is laconic compared to the long and detailed article 6 of the Information Society Directive. Article 7(1)(c) of the Software Directive states that Member States must prohibit

any act of putting into circulation, or possessing for commercial purposes of, any means the sole intended purpose of which is to facilitate the unauthorised removal or circumvention of any technical device which may have been applied to protect a computer program.

The term 'technical device' is not defined, but it is safe to assume that the definition of 'technological measures' given in article 6(3) of the Information Society Directive applies here *mutatis mutandis*: any technology, device or component designed to prevent or restrict acts not authorised by the software copyright holder. Thus all types of TPMs described earlier would be protected under the Software Directive. In fact, in *Sony v Ball* Mr Justice Laddie found that even when a TPM is applied not directly to the protected software but instead to the hardware on

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<sup>124</sup> For instance, Adobe is one of the many companies which uses this kind of activation technique. For an overview of the technical process behind activation TPMs used by this company see <<http://www.adobe.com/activation/main.html>> (accessed 22 June 2005).

<sup>125</sup> Justice Laddie described how 'lock and key' TPMs function in *Sony v Ball* (n 99) paras 4, 43.

<sup>126</sup> See definition of 'copy prevention' in Wikipedia <<http://www.wikipedia.org>> (accessed 30 May 2005).

<sup>127</sup> Information Society Directive art 1(2)(a) and recital 50.

which the software runs—dongles and authentication chips are examples of such TPMs—article 7(1)(c) does apply.<sup>128</sup>

The Software Directive does not draw a distinction between access and copy TPMs, thus both types are protected. It should be noted that TPMs controlling access to a computer program are actually copy control mechanisms, as the program can only be ‘accessed’ if a temporary copy of it is made in the computer’s RAM. The distinction lies between TPMs which prevent unauthorised transient copies and those which prevent unauthorised permanent copies—an example of the latter type would be a TPM which bars users from making back-up copies of the program.

Article 7(1)(c) does not prohibit the circumvention *per se* of protection mechanisms, the provision of circumvention services, or the manufacture of circumvention devices. Instead, it prohibits only the acts of putting into circulation or possessing for commercial purposes any means capable of circumventing a technical device which has been applied to protect a computer program. The circulation or possession for commercial purposes of circumvention means (devices or any other mechanisms, such as software which can ‘break’ specific TPMs) is prohibited only if the sole intended purpose of these means is the circumvention of TPMs. In other words, if a circumvention device can be used for other purposes apart from circumvention, the activities described in article 7(1)(c) are perfectly legal—however, these other purposes must be legitimate and not forbidden by copyright law or the copyright holder.<sup>129</sup>

The reason why the Software Directive is frugal with prohibiting circumvention activities is to safeguard the user rights which cannot be contractually restricted by the software proprietor, ie the right to make a back-up copy of, conduct black box analysis on or decompile a computer program.<sup>130</sup> If the acts of manufacturing circumvention devices or circumventing were prohibited, the software proprietor would be able to use TPMs so as to prevent users from exercising their lawful rights. In fact, article 7(1)(c) is the result of vigorous lobbying by big software manufacturers on the one hand and user groups and smaller manufacturers on the other—the article attempts to protect TPMs without corroding user rights or barring competitors

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<sup>128</sup> *Sony v Ball* (n 99) para 43.

<sup>129</sup> *ibid* paras 28-33.

<sup>130</sup> Rights described in arts 5(2) and (3) and 6 of the Software Directive, which according to art 9(1) of the same Directive cannot be contractually restricted.

from decompiling specific computer programs for the purpose of creating other new interoperable ones.<sup>131</sup>

Recital 50 of the Information Society Directive stresses the importance of allowing lawful users to decompile or conduct black-box analysis on computer programs: it states that the Information Society Directive's anti-circumvention provisions, which are a lot more protective of TPMs than article 7(1)(c) of the Software Directive,

should not apply to the protection of technological measures used in connection with computer programs, which is exclusively addressed in [the Software] Directive. It should neither inhibit nor prevent the development or use of any means of circumventing a technological measure that is necessary to enable acts to be undertaken in accordance with the terms of Article 5(3) and Article 6 of Directive 91/250/EEC. Articles 5 and 6 of that Directive exclusively determine exceptions to the exclusive rights applicable to computer programs.

However, it is debateable whether the Software Directive's stance towards circumvention tools safeguards effectively the inalienable user rights described in articles 5 and 6 of the same Directive. Lawful users of a computer program can attempt to circumvent a TPM which blocks their way to the program's source code, but there is no guarantee that they will actually succeed. Furthermore, even though it is legal to develop circumvention tools, it is illegal to put them in circulation, which means that such tools are not easily accessible to users. In practice, software houses that wish to circumvent a TPM so as to decompile the software it protects typically have sufficient technical knowledge to do so, and therefore in most cases they will not be prevented from creating interoperable software. However, the average lay user will not be able to 'crack' TPMs and may be prevented from making back-up copies of software which they are lawfully using.

As already mentioned above, the Information Society Directive is a lot more protective of TPMs than the Software Directive. Articles 6(1) and (2) of the Information Society Directive prohibit the circumvention of technological measures or the provision of circumvention services, and the manufacture, trading, sale, rental, advertisement for sale or rental, or the possession for commercial purposes of devices which circumvent TPMs. According to recital 49 of the Information Society Directive, Member States may also prohibit private possession of such

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<sup>131</sup> Copyright Review Paper (n 3) para 2.2.1.4.

devices. Notably, article 6 goes further than Article 11 WCT, which obliges signatories to outlaw only the circumvention of TPMs. The spectrum of circumvention tools caught by article 6(2) of the Information Society Directive is much broader than the one described in article 7(1)(c) of the Software Directive: whereas the latter outlaws tools whose sole purpose is circumvention, the former outlaws any tools which are primarily designed for facilitating circumvention or have limited commercial significance other than facilitating circumvention or are promoted as circumvention tools.

Due to the strong legal protection which the Information Society Directive affords to TPMs, lawful users of copyright material often find that TPMs impede not only unauthorised access and copying, but also the exercise of user rights.<sup>132</sup> Paragraph (4) of article 6 attempts to address this problem in the context of certain listed user rights such as the right to reproduce material available in libraries or the use of copyright material for scientific purposes. It provides that if rightholders do not voluntarily take measures towards this direction, Member States will take appropriate measures so as to safeguard these user rights. The nebulous notions of the 'voluntary' or 'appropriate' measures mentioned in article 6(4) does not guarantee that copyright users will always be able to enjoy the rights envisaged in the Information Society Directive—it remains to be seen how Member States will apply this provision in practice.

According to the Commission's Copyright Review Paper the Community has no intention of amending article 7(1)(c) of the Software Directive so that it protects TPMs applied to software just as vigorously as the Information Society Directive protects TPMs applied to other types of copyright works: such an amendment would tamper with software user rights and would need to be accompanied by a new provision mirroring the voluntary measures scheme of article 6(4) of the Information Society Directive.<sup>133</sup> However, software producers do find ways to benefit from the highly protective regime of the Information Society Directive in situations where a computer program is bundled together with other copyright material. Take for instance an encryption TPM applied to a DVD movie, which protects both the movie and the software contained in the DVD that enables users to play the movie: tampering with the encryption is prohibited under article 6(1) of the Information Society Directive even if one 'breaks' the encryption in order to decompile the software bundled with the movie. Another situation where software user rights

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<sup>132</sup> M Hart 'The Copyright in the Information Society Directive: An Overview' (2002) 24 EIPR 58, 62.

<sup>133</sup> *ibid.*

may be restricted by the Information Society Directive's anti-circumvention provisions is when computer programs contain databases or are used for operating databases; a TPM applied to the database—whether the latter is protected by copyright or the *sui generis* database right—is protected under the Information Society Directive and could prohibit users from reverse engineering or making back-up copies of the software.

### **Comparison with TPM protection in the USA**

In the USA, protection devices applied to software are more generously protected than in the EU. The DMCA affords the same level of protection to TPMs regardless of whether they protect software or any other type of copyright work.<sup>134</sup> Unlike the Software Directive, the DMCA distinguishes between access and rights control mechanisms—the latter are typically copy control mechanisms, but could also safeguard any other copyright owner right, such as distribution. Both access and rights control mechanisms are protected against manufacture, import or trafficking of circumvention tools which are primarily designed for circumvention, have limited commercial significance other than circumvention, or are marketed for circumvention.<sup>135</sup> However, only access control TPMs are protected against circumvention *per se*, so that users are allowed to circumvent rights controls which interfere with lawful uses of copyright works.<sup>136</sup> It should be noted that the prohibition on circumvention of access control mechanisms only took effect in 2000, two years after the DMCA was enacted.<sup>137</sup> Copyright owners have found a way to protect rights controls from the act of circumvention *per se*: the *RealNetworks* and *DeCSS* cases—which were decided under the DMCA—have demonstrated how copyright owners often merge access with rights control TPMs so as to benefit from the stronger protection afforded to the former.<sup>138</sup>

The DMCA does allow circumvention of access TPMs applied to software if the purpose is to reverse engineer the protected computer program in order to independently develop an

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<sup>134</sup> The DMCA, which was passed in 1998, has added Chapter 12 to 17 USC.

<sup>135</sup> 17 USC 1201(a)(2) and (b)(1).

<sup>136</sup> *ibid* 1201(a)(1)(A).

<sup>137</sup> *ibid*.

<sup>138</sup> *RealNetworks Inc v Streambox Inc* No C99-2070P US Dist LEXIS 1889, January 18, 2000 and *Universal City Studios Inc v Reimerdes* 11 F Supp 2nd 294 (SDNY 2000) (known as 'DeCSS'). For a discussion of the how copyright owners in the USA 'circumvent' the DMCA by merging access and rights controls see A Reese 'Will Merging Access Controls and Rights Controls Undermine the Structure of Anticircumvention Law?' (2003) 18 *Berkley Technology LJ* 619.



interoperable computer program; for the same purpose, it is also allowed to develop and use means of circumvention.<sup>139</sup> However, there is no exemption allowing the trafficking of tools which can be used for circumventing access controls for the purpose of reverse engineering. Likewise, the DMCA has no exemption safeguarding the fair use right to create a back-up copy of a program for archival purposes: there is no provision allowing circumvention of access controls for this purpose or allowing manufacture and trafficking of circumvention tools which can be used for this purpose. Last but not least, the DMCA has a provision similar to article 6(4) of the Information Society Directive, which states that the Librarian of Congress must periodically consider whether the ban on the circumvention of access control TPMs is likely to adversely affect the lawful use of particular classes of copyright works;<sup>140</sup> and the Librarian has the power temporarily to lift the ban for users of works belonging to these classes.<sup>141</sup> Section 1201(a)(1)(C) of the USC provides that the Librarian may exempt classes of works two years after the enactment of the DMCA and must revise any exemptions every three years thereafter. Some exemptions were indeed introduced in 2000 and 2003 as far as access controls applied to software and databases are concerned. In 2000 the Librarian of Congress announced that it is permitted to circumvent access control mechanisms applied to computer programs and databases if these mechanisms fail to permit access because of malfunction, damage or obsolescence. And in 2003 the Librarian decided that the exemption will apply only to computer programs (and not databases) protected by dongles which are obsolete and which prevent access due to malfunction or damage; additionally, computer programs and video games distributed in formats which have become obsolete and which require the original media or hardware as a condition of access have also been exempted.<sup>142</sup>

### ***TPMs restricting user rights and competition***

On the whole, the Software Directive is more permissive than both the Information Society Directive and the DMCA as far as the user's ability to circumvent TPMs is concerned. Having said that, all three pieces of legislation have come under considerable criticism for their failure

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<sup>139</sup> 17 USC 1201(f).

<sup>140</sup> *ibid* s 1201(a)(1)(C).

<sup>141</sup> *ibid* s 1201(a)(1)(D).

<sup>142</sup> See the relevant statements of the Librarian of Congress at <<http://www.copyright.gov/1201/anticirc.html>> and at <<http://www.copyright.gov/1201/2003/index.html>> (accessed 19 October 2005). In both instances the Librarian also introduced exemptions relating to compilations of website lists blocked by filtering applications and to e-books.



to ensure that TPMs do not interfere with the exceptions and limitations to copyright as these are described in EU and US law; the strong protection of TPMs which has resulted from the Software Directive and the various implementations of the WCT around the world has tipped the balance between copyright holder and user rights towards the former.<sup>143</sup> Further, there are signs that software manufacturers are using TPMs not only to protect their products from unauthorised access and reproduction, but also to partition markets, a policy which raises competition law issues.

This trend has been illustrated in a series of recent cases tried in the USA (*Sony v Gamemasters*), the UK (*Sony v Owen* and *Sony v Ball*) and Australia (*Sony v Stevens*), which involve the circumvention of the protection mechanism which Sony applies to its games cartridges.<sup>144</sup> Sony employs a 'key and lock' TPM: this involves a chip embedded in the PlayStation 2 (PS2) consoles, which 'reads' an encrypted access code found within Sony computer games. The consoles only play games (embodied in DVDs and CDs) which have this data. The protection mechanism serves a dual purpose. First, it prevents copied games from being played in Sony consoles: when original games are copied in a standard CD-ROM burner, the encrypted code is not copied, and therefore the consoles fail to find the code and do not run the game. Secondly, it ensures that consoles bought in a certain geographical area only play games bought in that same area. Sony embeds three different access codes in games distributed in three different geographical zones—Japan, USA and the PAL zone (which includes European countries, Australia and New Zealand). For instance, Japanese consoles cannot read games bought in the USA and so on and so forth.

This policy of 'region locking' is quite common amongst video game companies. Apart from PS2, the TPM mechanism described above is employed in the other two most popular games station consoles: Nintendo's Gamecube and Microsoft's Xbox.<sup>145</sup> Game manufacturers justify region locking as necessary for protecting their geographical release schedule—they release the

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<sup>143</sup> See Reese (n 138) and P Samuelson 'Why the Anti-Circumvention Regulations Need to be Revised' 1999 (14) Berkley Technology LJ 519. Strong anti-circumvention laws also have their apologists: see Marks and Turnbull (n 122) and N Braun 'The Interface between the Protection of Technological Measures and the Exercise of Exceptions to Copyright and Related Rights: Comparing the Situation in the United States and the European Community' (2003) 25 EIPR 496.

<sup>144</sup> *Sony v Gamemasters* 87 F Supp 2 d 976 (N D Cal 1999); *Sony Computer Entertainment Inc v Owen* [2002] EMLR 742, *Sony v Ball* [2004] EWHC 1738 (Ch), [2004] All ER (D) 334 (Jul); and *Kabushiki Kaisha Sony Computer Entertainment v Stevens* [2005] HCA 58.

<sup>145</sup> A MacCulloch 'Game Over: The "Region Lock" in Video Games' (2005) 27 EIPR 176, 177.

same game at different dates in the three geographical zones described above—and necessary for discouraging parallel imports before games are officially released in a particular region.<sup>146</sup> However, this is only part of the truth: in reality, manufacturers want to prevent parallel imports so that they can maintain different prices in different regions for the same game—for instance PS2 consoles are markedly cheaper in Australia than in the UK.<sup>147</sup>

In all *Sony* cases mentioned above, defendants were selling external mod chips<sup>148</sup> which, when inserted in PS2 consoles, ‘trick the console into believing that the CD or DVD being played has the necessary embedded codes’.<sup>149</sup> This way, both illegal copies and copies which were legal but imported from a different geographical zone could run on the Sony consoles. In the cases which came before the US and UK courts, the chips were found to be devices circumventing a TPM (the original chips in the consoles and the access codes in the games) applied to computer programs. The courts found that the games embodied in the Sony DVDs and CDs were computer programs or consisted of computer programs and other copyright works, and that the activity of selling the mod chips was illegal under the respective national anti-circumvention legislations. In the Australian case the High Court found for the defendant.

The *Sony* cases have highlighted the two issues discussed in this section. First, that article 7(1)(c), the Software Directive’s anti-circumvention provision, can prevent uses of a computer program which fall within the copyright exceptions listed in articles 4, 5 and 6 of the Directive. And secondly, that article 7(1)(c) can be used to protect TPMs which frustrate competition.

The first issue is illustrated in *Sony v Ball*, where the defendant claimed that the mod chips he had sold did not have as their sole intended purpose the circumvention of Sony’s TPM and therefore were not caught by section 296(1)(b)(i) of the CDPA, which implements article 7(1)(c) of the Software Directive. Instead, he claimed, the mod chips were intended to allow users of original Sony games bought in the UK to back up those games, or play them on PS2 consoles bought outside the PAL zone. Both these activities are lawful under the Software Directive.

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<sup>146</sup> *ibid* 176.

<sup>147</sup> B Esler ‘Judas or Messiah? The Implications of the Mod Chip Cases for Copyright in an Electronic Age’ (2003) 1 Hertfordshire LJ 1, 3.

<sup>148</sup> The term ‘mod chip’ is short for ‘modifying chip’. To ‘mod’ a computer game is to create custom levels, objects or characters. See <<http://www.pcwebopedia.com>> (accessed 17 June 2005). The term ‘mod chip’ always refers to devices used to play important or illegal copies of computer games by circumventing TPMs in games consoles. See <<http://www.answers.com>> (accessed 17 June 2005).

However, Laddie J, the presiding judge, rejected both arguments. He held that it is not necessary to back up Sony's games because they have a DVD format, which is reliable and not susceptible to damage. He also held that the computer games bought in the UK were licensed with the territorial restriction that they should only be used in the UK; therefore, in his view, it was permissible to use the games only on PS2 consoles bought inside the PAL zone. The judge's findings invite considerable criticism. As has already been pointed out in section 3.6.2 of this chapter, users can easily justify their need to back up their copies of computer programs. Regarding the supposed territorial restriction, it has been suggested that it actually did not exist.<sup>150</sup> The game's shrink-wrap licence stated that the game was 'for home use only', but this can be construed as referring to a private rather than commercial use in a video arcade; it could also refer to a ban on lending. The licence also stated that the game is only compatible with PS2 consoles bought within the PAL market—again, this is merely a warning to users that the game will not work with non-PAL consoles rather than a territorial restriction. It seems likely that Sony intended those extracts of the shrink-wrap licence to amount to a territorial restriction, but no clear territorial restriction exists due to the phrasing and tone of these sentences.

The ease with which Laddie J rejected the defendant's well-founded arguments should raise alarm bells, as it is a clear demonstration that the Software Directive's anti-circumvention provision can be used to restrict lawful user rights. It shows that the 'sole intended purpose' requirement is difficult to construe correctly. This is understandable to a certain extent, as it is difficult to prove what is the intended purpose of someone circulating or commercially exploiting an anti-circumvention device. Any defendant will claim that their intended purpose was to allow users to exercise their lawful rights; that his purpose was not to facilitate circumvention of the TPM so that a copyright infringement can take place. Given that the Copyright Review Paper does not advise on amending article 7(1)(c) of the Software Directive, this problem will persist.

The second issue raised from the Sony cases was that TPMs can be used to partition markets. This was illustrated in *Sony v Stevens*, in which the High Court of Australia found that anti-circumvention rules were not breached. In that case, the court's conclusion was informed by the

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<sup>149</sup> *Sony v Ball* para 6.

<sup>150</sup> *MacCulloch* (n 145) 179-182.

court's concern that the TPM applied by Sony could raise serious competition law concerns.<sup>151</sup> Stevens had sold unauthorised copies of certain PS2 games as well as mod chips which could be installed in PS2 consoles so as to bypass the lack of required access codes in the bootleg games. The court found that the access codes embedded in the original games were not TPMs, because they did not prevent third parties from infringing the copyright in the games; instead, they actually prevented access to the bootleg copies released by the defendant—in other words, by the time a user accesses the unauthorised copy by using the mod chip, the infringement has already taken place. The court said that copying the bootleg game in the console's RAM does not constitute unauthorised reproduction (and therefore copyright infringement) because, according to the version of the Australian Copyright Act in force when the facts of the case took place, temporary reproduction is not reproduction in 'material form' and therefore does not constitute copyright infringement.<sup>152</sup> As the High Court found that there was no TPM attached to Sony's games, the mod chips were not anti-circumvention devices.

In its judgment, the court stated that one of the reasons it construed the term 'TPM' narrowly was because a wide interpretation would extend the copyright owner's monopoly. The court chose to define TPMs as devices which prevent copyright infringement—the definition did not include devices which obstruct actions which do not harm copyright or are otherwise lawful. For instance, playing a PS2 game bought in the US in an Australian console is a lawful activity which should not be obstructed by copyright law.<sup>153</sup> The court's view had been influenced by the submissions made by the Australian Competition and Consumer Commission (ACCC) before the Federal Court of Australia where the case was tried at first instance.<sup>154</sup> The ACCC, which acted as *amicus curiae* in that case, had submitted that a broad definition of the term 'anti-circumvention device' would harm competition and consumer choice. More specifically, it would allow computer game manufacturers to bundle their consoles to their games and sell the games at any price they chose to.

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<sup>151</sup> For a discussion of the High Court of Australia's judgment on *Sony v Stevens* see T. C. C. and M. Fox 'Competition v Copyright Protection in the Digital Age' (2006) 28 EIPR 329.

<sup>152</sup> This was provided in Australia's Copyright Amendment Act 1984. In 2005, s 10(1) of the Australian Copyright Act was amended so as to encompass any form of storage, temporary or not. Under the current Act, the court would have found that Sony's access codes were TPMs.

<sup>153</sup> *Sony v Stevens* (n 144) para 47.

<sup>154</sup> *Kabushiki Kaisha Sony Computer Entertainment v Stevens* [2002] FCA 906.



ACCC's observations are valid. It is clear that Sony and other computer game manufacturers attempt (often successfully) to use anti-circumvention laws not only in order to protect their copyright, but also to partition markets, bundle different products and ensure that consumers pay different prices in different countries for consoles and games. So far software producers have not used TPMs in order to create different markets within the European Union, but perhaps it is only a matter of time before they exploit the anti-circumvention provisions in the Software and Information Society Directives. Apart from these competition law considerations, the EC's anti-circumvention laws also restrict the user's right to create a back-up copy of a game he or she has lawfully acquired: if the games console will not play such a copy and the user is not allowed to use a circumvention device to bypass the TPM, article 5(2) of the Software Directive is infringed. Neither the Software Directive nor the Information Society Directive provide that anti-circumvention protection is restricted to TPMs whose sole purpose is copyright protection, therefore both Directives can be used to protect TPMs protecting the copyright holder's rights and also enforcing a region control system.

### 3.7.2 Rights management information

EU law protects not only technical devices preventing unauthorised access and reproduction of software, but also RMI attached to software. The term 'RMI' was first used in Article 12 of the WCT and has been retained in the faithful implementation of this provision by article 7 of the Information Society Directive.

The Software Directive has no provisions on the protection of RMI, therefore article 7 of the Information Society Directive, which deals with RMI attached to copyright works, applies. According to article 7(2), the term 'RMI' includes any information identifying the copyright work, the author or any other right holder (for instance an exclusive licensee of the copyright or the distributor of the copy), the terms and conditions under which the work can be used and any numbers or codes representing such information. The most common way of attaching RMI to a computer program is by displaying the licence or copyright notice when the program is installed or every time the user starts running the program.

Article 7(1) of the Information Society Directive forbids the removal or alteration of RMI and the circulation of works from which RMI has been removed or whose RMI has been altered. Article 7(1) is breached only if a person carries out any of these activities knowingly and also knows 'that by so doing he is inducing, enabling, facilitating or concealing' a copyright





infringement.<sup>155</sup> In other words, there is no liability if someone removes information accidentally, or removes it deliberately but is unaware that there has been a copyright infringement. Article 7 does not prohibit manufacturing or circulating devices which can remove RMI nor does it prohibit publishing information on how to remove RMI.

The Community justifies the need to protect RMI on two grounds, both of which are related to the nature of digital works.<sup>156</sup> The first is cited in recital 55 of the Directive: the more popular on-line distribution of digital copyright works becomes, the bigger the need to ensure that rightholders can manage their rights effectively—ie users must be aware of what the limitations of their rights are. In the case of software, RMI may remind users that they can install a computer program only on one machine or that they can use it for a certain period of time. The copyright holder may choose to enforce these terms of usage using TPMs, but may also want to ensure that the user is constantly reminded of these limitations by the RMI embedded in the software. The second reason, cited in recital 56, is that digital works can be easily altered or modified, and therefore it is important that information identifying the work is not removed from copies of a work.

It should be noted that the DMCA matches the level of DRI protection envisaged in the Information Society Directive but it goes even further: it states that it is illegal to provide or traffic false RMI if one does so knowingly and with the intent ‘to induce, enable, facilitate, or conceal infringement’.<sup>157</sup>

### 3.7.3 Trusted computing

Major actors in the computing industry have come together in recent years to coordinate a scheme which allows them to draw the maximum benefit from the laws adopted around the world as countries have been implementing the WCT provisions on the protection of TPMs and RMI. In 1999 software and hardware manufacturers such as Microsoft, Intel, IBM and Hewlett-

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<sup>155</sup> Information Society Directive art 7(1) last paragraph.

<sup>156</sup> See Bently and Sherman (n 34) 315.

<sup>157</sup> 17USC 1202 (a).

Packard established the Trusted Computing Platform Alliance, now renamed as Trusted Computing Group (TCG).<sup>158</sup>

The objective of the TCG was to adopt a set of specifications for a 'trusted computing system'. In this context, 'trusted' means that software running on a computer can be trusted by third parties, who can verify that the software in question has not been modified by the computer's owner.<sup>159</sup>

The TCG has not yet released many details about what exactly trusted computing will involve. However, we do know that that one of its main functions will be to ensure that DRM systems protecting copyright works will be very difficult to circumvent. Trusted computing will allow content providers to distribute their works on-line knowing that users will have on their computers 'trusted' software which allows them to access works they have paid for, without allowing them to 'stray' from the agreed terms of use or tamper with RMI embedded in the work. For instance, when a software licence dictates that the user is allowed to use the program he or she downloaded from the internet only for a certain period of time, the computer's operating system will not allow the user to circumvent TPMs applied to the program in order to make permanent copies of it and carry on using it once the licensing term has expired.

Another function of trusting computing (one which Microsoft has already incorporated in its Office 2003 applications suite) is that authors of files will be able to control who can access these files—only people who also use trusted computing platforms and are authorised will be able to do so. There are also rumours that trusted computers will be able to detect and disable pirate software installed in it.

An aspect of trusted computing which could raise competition law concerns is that it would increase the cost of switching to non-trusted platforms and applications: if files created using trusted software can only be viewed using trusted software, users would face problems when trying to convert the files to a format compatible with the new software they want to switch to.

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<sup>158</sup> For an overview of the TCG and trusted computing see R Anderson "'Trusted Computing' Frequently Asked Questions' available at <<http://www.cl.cam.ac.uk/~rja14/tcpa-faq.html>> (accessed 30 June 2005).

<sup>159</sup> R Anderson 'Cryptography and Competition Policy—Issues with "Trusted Computing"' available at <<http://www.ftp.cl.cam.ac.uk/ftp/users/rja14/tcpa.pdf>> (accessed 30 June 2005).

In other words, trusted computing could have a lock-in effect and prevent non-trusted (albeit legally available) software from circulating freely within the common market.<sup>160</sup>

### 3.8 Software copyright infringement

Copyright vested in software by virtue of the Software Directive is breached when an unauthorised third party carries out any of the restricted acts listed in article 4 of the Directive or when an authorised user carries out acts going beyond the user rights described in articles 5 and 6 or beyond the licensing terms under which they use the program. Infringing acts relating to the code underlying a computer program are easy to prove: for instance, creating pirate copies of a computer program equals reproduction of the program's code and breaches article 4(a); reproducing substantial part of the program's code in a new program also breaches article 4(a); distribution of such copies breaches article 4(c); translating the program's code in another programming language and thus creating a new program breaches article 4(b). However, other types of copyright infringement are much more difficult to substantiate: when the object of copying was not the code underlying a program but instead its user interfaces and non-literal elements, copyright owners face a more difficult battle. They need to prove two things. First, that the elements in question are protected by copyright. And secondly, that the copyright vested in these elements was infringed. The Software Directive does not offer guidance on answering these questions. As a consequence, national courts in EU Member States have reached quite divergent positions on non-literal copying of computer programs.

The term 'non-literal elements' was first used in relation to written works: the words of a novel are its literal elements, whereas the plot, story line and incidents described in the book are its non-literal elements. In the case of computer programs, source and object codes are the literal elements, whereas non-literal elements include program structure (sometimes referred to as architecture), flow charts, sequence of operations, overall function or purpose of the program and non-user interfaces (ie interfaces determining how the program interacts with other programs and with the hardware it runs on).

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<sup>160</sup> On the competition law considerations that might arise from the implementation of the trusted computing scheme see C Koenig and D O'Sullivan 'Is "Trusted Computing" an Antitrust Problem? Microsoft et al under Scrutiny' (2003) 24 ECLR 449.

Alleged copying of non-literal elements and user interfaces has been the object of litigation in Europe and the USA on numerous occasions. It is very common for software developers to copy the structure or user interface of popular computer programs; and equally common for proprietors of the copied programs to bring legal actions against the imitators, as the new products could take away part of their market share. The famous case of Microsoft copying Apple's desktop icons—which is discussed below—is a typical example of such legal actions.

The reason why copyright protection of user interfaces and non-literal elements is controversial lies in the traditional idea/expression dichotomy associated with copyright law internationally. It will be recalled that article 1(2) of the Software Directive affords copyright protection to the expression in any form of a computer program, but not to ideas and principles underlying any element of the computer program, including its interfaces. Articles 2 WCT and 9(2) TRIPS<sup>161</sup> state that copyright protection extends 'to expressions and not to ideas, procedures, methods of operation or mathematical concepts as such.' And in the USA, 17 USC 102(b)—the basis upon which Article 2 WCT was drafted—states that copyright protection of an original work does not 'extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated or embodied in such work.' When it comes to user interfaces and non-literal elements of computer programs such as structure and functions, courts are faced with the question of whether these are the expression of the ideas behind them or whether they constitute ideas themselves—in the latter case, courts will find them not eligible for copyright.

Prior to discussing how national courts in the EU have interpreted article 1(2) of the Software Directive as far as non-literal and user interface copying is concerned, an overview of the relevant US case law will be given. As both US and EU copyright law protect the expression of a computer program and not the ideas which underlie it, it is interesting to examine how courts on both sides of the Atlantic dealt with similar questions.

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<sup>161</sup> The Trade Related Aspects of Intellectual Property Rights Agreement (TRIPS) is Annex 1C of the Marrakesh Agreement Establishing the World Trade Organization (Marrakesh 15 April 1994).

### 3.8.1 USA case law on copying of non-literal elements and user interfaces

*Whelan v Jaslow* was one of the first US cases to consider copyright protection of non-literal elements.<sup>162</sup> The Third Circuit of the US Court of Appeals found that the structure of a program is eligible for copyright and that the copyright protecting a computer program can be breached even when none of the literal elements of the program has been copied. The judgment was later criticised for offering very broad copyright protection to non-literal elements. The later case of *Lotus v Paperback* expanded further the scope of copyright in relation to computer programs, by holding that the user interface of the Lotus 1-2-3 spreadsheet program was protected by copyright.<sup>163</sup>

In 1992, six years after *Whelan*, the Second Circuit US Court of Appeals delivered what remains today the seminal judgment in US law on the copyrightability of non-literal elements: *Computer Associates International Inc v Altai Inc*.<sup>164</sup> This judgment effectively reversed *Whelan*, as it took a much more restrictive view of the copyright eligibility of non-literal elements. The plaintiff in *Altai* owned the copyright to a job scheduling program, which included a (non-user) interface component, a sub-program called ADAPTER that allowed the program to be used with different operating systems.<sup>165</sup> The plaintiff claimed that Altai's own job scheduling program contained an interface component which infringed the copyright vested in ADAPTER. Given that the two components had entirely different source codes and therefore literal copying could not be claimed, the plaintiff alleged that ADAPTER's structure had been copied. The court said that a program's structure includes non-literal elements such as flow charts, macros<sup>166</sup> and the organisation of the relationships between different modules of the program. The court confirmed that non-literal elements are not excluded from copyright protection, but criticised *Whelan* of being over-protective towards them. In the case at hand, it found that no copying had taken

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<sup>162</sup> *Whelan Associates Inc v Jaslow Dental laboratory Inc* 797 F 2d 1222 (3<sup>rd</sup> Cir 1986).

<sup>163</sup> *Lotus Development Corp v Paperback Software International* 982 F 2d 693 (2<sup>nd</sup> Cir 1992).

<sup>164</sup> 982 F 2d 693 (2<sup>nd</sup> Cir 1992).

<sup>165</sup> The job scheduling program in question was called CA-SCHEDULER and was designed for IBM mainframe computers. According to the judgment, its functions were 'to create a schedule specifying when the computer should run various tasks, and then to control the computer as it executes the schedule.' *Altai* (n 164) 11.

<sup>166</sup> A macro is 'a combination of commands, instructions, or keystrokes which may be stored in a computer's memory to be executed as a single command by a single keystroke or a simultaneous combination of keystrokes'. Definition taken from <[www.nuhorizons.com/Glossary/ComputerConcepts.html](http://www.nuhorizons.com/Glossary/ComputerConcepts.html)> (accessed 29 June 2003).



place. It reached this conclusion by applying a three-part test, known as ‘the *Altai* test’. The first part is abstraction: the allegedly copied program is examined in terms of structure, its various modules, routines and sub-routines are identified and the function of each one of these is established. The second part is filtration: copyright elements are separated from those which are not protected by copyright because they are ideas, because they are dictated by efficiency or by external conditions, or because they are not original (ie they have been copied from elsewhere or belong to the public domain and are therefore commonly used by programmers). What is left after this filtering is the program’s protected kernel. The third and final part of the test is comparison: the court decides whether there are substantial similarities between the copyright kernel of the first program and the allegedly infringing program. Applying this test to the case at hand, the court found that very few elements of ADAPTER were protected by copyright and therefore no infringement had taken place.

The *Altai* test was further elaborated a year later in *Gates Rubber Co v Bando Chemical Industries*,<sup>167</sup> where the court offered some guidelines on the question of which non-literal elements will usually be found unprotectable in the filtration step: the main function/purpose of the program is always an unprotectable idea; modules are defined in terms of their functions when the structure of the program is first laid out, and therefore are almost always unprotectable ideas; the structure and organisation of the program may be protectable, depending on the whether they constitute an idea or is the expression of an idea. Although *Gates Rubber* is not of much help regarding the protection of program structure, it makes clear that program functions and modules are as a rule not eligible for copyright protection.

The *Altai* test has been applied by numerous US courts and, owing to its flexibility, has become the accepted technique for judging non-literal infringement cases; it is also used in literal infringement cases<sup>168</sup> and has been used in some user interface cases.

Most user interface cases coming before courts in the USA and in the EU regard the so-called ‘look and feel’ of computer programs. The term is often used as a synonym for ‘user interface’, but in fact it describes particular aspects of a program’s user interface which can be perceived by the user. ‘Look’ refers to the screen outputs displayed on the computer’s screen—icons, colours,

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<sup>167</sup> 9 F 3d 823 (10<sup>th</sup> Cir 1993).

<sup>168</sup> *Bateman* was the first case where the court applied the *Altai* test to claims of literal copying. *Bateman v Mnemonics Inc* 79 F 3d 1532 (11<sup>th</sup> Cir 1996).

shapes, layout etc. And ‘feel’ refers to the dynamic and operational flow of the program—using keystrokes, buttons, icons and drop-down menus to invoke functions. A program’s user interface includes many other elements which are not encompassed in the term ‘look and feel’: the structure, sequence and organisation of interface specifications and the code which implements them.<sup>169</sup>

In the USA, courts have dealt with user interface cases by using two different methods. First, they apply 17 USC 102(b) to conclude whether the interface elements in question are protected by copyright. In the context of applying that provision, they sometimes use the *Altai* test. Secondly they examine whether the various elements of the program’s user interface can be viewed as a compilation—this method is sometimes referred to as ‘the compilation doctrine’. US law uses the term ‘compilation’ rather than ‘database’, but the criteria it uses for awarding copyright protection to compilations are similar to the ones prescribed in the Database Directive: a compilation is protected by copyright if it has been independently created by its author and displays a minimum degree of creativity.<sup>170</sup> Sometimes, courts use these two different methods conjunctively in the same case.

Both the *Altai* test and the compilation doctrine were employed in the user interface case of *Engineering Dynamics Inc v Structural Software Inc*.<sup>171</sup> In that case, the court found the input and output structure of the program’s user interface was protected as a compilation. In *Productivity Software International Inc v Healthcare Technologies Inc* the court applied the *Altai* test and found in the filtration step that no single user interface element was protected.<sup>172</sup> The court subsequently applied the compilation doctrine to find that the display screens of the program in question constituted a copyright compilation due to their arrangement. The compilation doctrine was applied in *MiTek Holdings Inc v Acre Engineering Co Inc*,<sup>173</sup> where the court found that the command line interface of the program in question was a copyright

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<sup>169</sup> Lai (n 97) 66.

<sup>170</sup> 17 USC 101 defines compilations as works ‘formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship.’ The originality criterion used for compilations in US law remains the one stated in *Feist Publications Inc v Rural Telephone Service Co Inc* 499 US 340, 111 S Ct 1282 (1991). For a discussion of *Feist* see section 1 of chapter 3 in this thesis.

<sup>171</sup> 26 F 3d 1335 (5<sup>th</sup> Cir 1994).

<sup>172</sup> 37 USPQ 2d (BNA) 1036 (SDNY 1995).

<sup>173</sup> 89 F 3d 1548 (11<sup>th</sup> Cir 1996).

compilation—however the court found that no copyright infringement had taken place, as the user interface of the defendant's program did not have substantial similarities with that of the plaintiff's.

A variation of the *Altai* test was also used in *Apple v Microsoft*, the first US case which dealt with the claim that a program's 'look and feel' was copied. When Microsoft released Windows 1.0, its first graphical user interface (GUI) operating system for IBM and IBM-compatible computers, Apple claimed it was very similar to its own Macintosh GUI. This dispute was settled in 1985 with Apple granting Microsoft a licence known as the '1985 agreement'. Microsoft admitted in the preamble to the licence that these visual displays were derivatives of the visual displays generated by Apple's GUI. The licence itself allowed Microsoft to use and sublicense visual displays which appeared in Windows 1.0 in present and future computer programs. Microsoft proceeded to release Windows 2.03 and 3.0 and to grant Hewlett-Packard a licence permitting the latter to use Windows in its New Wave program.

Apple filed a suit claiming that Microsoft's new Windows versions and Hewlett-Packard's New Wave software infringed Apple's copyright in the Macintosh GUI—in fact Apple claimed that the Macintosh 'look and feel' was infringed. In the court proceedings, the plaintiff claimed that Microsoft had exceeded the terms of the 1985 agreement: according to Apple, the object of that agreement was the visual displays as they appeared in Windows 1.0 and Microsoft had included new versions of these displays in its new versions of Windows, an act which was not covered by the licence.

The District Court of California delivered its judgment on the case in 1992, shortly after *Altai* was delivered.<sup>174</sup> In its judgment the District Court agreed with *Altai*'s criticism that *Whelan* was overprotective of non-literal elements in computer programs. The court did not say expressly that the *Altai* test should be used in the case at hand, but did in fact use a method very similar to the filtration step of the test. The court considered all the GUI elements in Microsoft's and Hewlett-Packard's computer programs which Apple claimed infringed its copyright, and found that most of these elements had been licensed under the 1985 agreement. Out of the remaining few that had not been licensed, only a couple were deemed susceptible of copyright—eg the

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<sup>174</sup> *Apple Computer Inc v Microsoft Corporation* 799 F Supp 1006 (NC Cal 1992). For a concise discussion of the *Apple* saga, see SA Mota 'Apple Computer v. Microsoft: The Ninth Circuit Finds No Copyright Infringement of Apple's Graphical User Interface' (1995) 23 Western State U L Rev 39.

trash can icon. The rest were not worthy of copyright protection, either because they were not original (Apple had copied them from Xerox's Smalltalk operating system) or because they were elements where the idea and its expression had merged into one (ie there was only one possible way of expressing the particular idea). On the basis of these findings, the court held the similarities between the Macintosh Operating System GUI and the GUIs of Windows and New Wave were not big enough to substantiate a copyright infringement. The Ninth Circuit Court of Appeals upheld the District Court's judgment.<sup>175</sup>

Aside from *Apple v Microsoft*, *Lotus v Borland* is the other well-known case which discussed the question of user interface copyright eligibility. However, in this case the court used neither the *Altai* test nor the compilation doctrine. The litigation concerned the Lotus 1-2-3 spreadsheet program, the same program which had sparked *Lotus v Paperback* some years before. Using different code, Borland replicated the menu command hierarchy of Lotus 1-2-3 in its Quattro products. The First Circuit Court of Appeals did not apply the *Altai* test because it believed the test was appropriate for non-literal infringement claims and not for user interface ones. The court found that Lotus' menu command hierarchy did not qualify for copyright protection.<sup>176</sup> It held that it was a method of operation, which provided users with the means to operate and control Lotus 1-2-3, and as such fell under section 17 USC 102(b), which provides that methods of operation do not qualify for copyright protection. The court rejected Lotus' argument that the hierarchy was a form of expression because it informed users of the choices available to them so as to perform spreadsheet tasks; it said that the hierarchy did not merely explain and present Lotus's functional capabilities to the user, but it also served as a method by which the program was operated by the user. The court also said that one of the factors which led it to reach this conclusion was that if the hierarchy was found to be susceptible of copyright, the compatibility between Lotus 1-2-3 and Borland's Quattro products would be prejudiced.<sup>177</sup> The Supreme Court affirmed the First Circuit's judgment.<sup>178</sup>

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<sup>175</sup> *Apple Computer Inc v Microsoft Corporation* 35 F 3d 1435 (9th Cir. 1994), cert denied, 115 S Ct 1176 (1995).

<sup>176</sup> *Lotus Development Corp v Borland International* 49 F 3d 807 (1<sup>st</sup> Cir 1995).

<sup>177</sup> The compatibility between Lotus 1-2-3 and the Quattro products was possible because, by replicating Lotus' command hierarchy, Borland allowed users to transport the Marcos they had created in Lotus 1-2-3 to the Quattro spreadsheets.

<sup>178</sup> *Lotus Development Corp v Borland International* 516 US 233 (1996).



### 3.8.2 EU Member States' case law on copying of non-literal elements and user interfaces

National courts in EU Member States have been idle compared to their US counterparts as far as software copyright litigation is concerned. Various factors may have contributed to this. Software licences and employment contracts tend to be very effective in Europe, and therefore software licensees and programmers do not dare to breach them respectively—in fact some software firms discourage teleworking so that they can control the code of software produced by their programmers. Furthermore, cases of software copyright infringement which do go to court result to judgments only after a very slow procedure, a fact which discourages software owners from pursuing such cases.<sup>179</sup> In addition, it is submitted here that powerful players in the software industry such as Microsoft tend to focus their litigation efforts on piracy and slavish copying (which cause them big financial losses), rather than on instances of copying of the user interfaces and non-literal elements of their products. When big players do pursue this latter type of cases, they tend to prefer resorting to US rather than European courts, as judgments delivered in the USA would attract extensive media coverage around the world (and dissuade others from engaging in infringing actions).

In the EU, national courts do not deal with the question of software copyright infringement in a homogenous way. As far as the originality threshold used is concerned, continental courts tend to use the criterion envisaged in article 1(3) of the Software Directive, according to which only a program which is the author's own intellectual creation is protected by copyright. On the other hand, British courts continue to employ the 'skill and labour' criterion, as the UK never implemented the article in question. And as far as non-literal elements and interfaces are concerned, again there is no uniformity—even within the same Member State courts often reach contradictory conclusions. Even though all Member States recognise the idea/expression dichotomy in their national copyright laws, the line between idea and expression is often drawn at different places. As for the question of whether the alleged infringer has copied substantial part of the original program, national courts employ different criteria. Regarding the two latter issues (employment of the idea/expression dichotomy and the question of substantiality) it is not surprising that courts reach such divergent conclusions. In section 3.2.2 of this chapter it was argued that the Software Directive is not sufficiently clear on whether user interfaces and the

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<sup>179</sup> Derclaye (n 43) 63.



logic running through a program (in other words its structure) are susceptible of copyright.<sup>180</sup> Regarding the issue of how substantiality should be judged, again the Directive offers no guidance—it states that unauthorised reproduction of a program ‘in part or in whole’ infringes the author’s copyright, but does not clarify how ‘in part’ should be construed.<sup>181</sup>

In France, courts tend to rely on experts’ opinions and have not devised a particular test for the infringement of user interfaces and non-literal elements.<sup>182</sup> Experts themselves seem to use the filtration step of the *Altai* test—they exclude from copyright protection elements which are dictated by efficiency or external conditions. Also, some courts use quantitative rather than qualitative criteria to judge whether the copied part was substantial.<sup>183</sup> Due to the fact that courts do not follow a particular test of method, they often reach contradictory decisions: sometimes they conclude that elements which are in fact unprotectable are protected by copyright and that this copyright has been infringed, and other times they find that no infringement took place because the copied part was quantitatively very small, even though in truth the copied part was qualitatively substantial.

In Belgium, most software copyright infringement cases which have come before courts concerned literal copying (ie copying of source or object code). However, courts apply a method similar to the *Altai* test when dealing with literary (other than computer programs) and audiovisual works,<sup>184</sup> so it is possible that in the future they will employ the same test when dealing with cases on copying of non-literal elements or user interfaces.

As far as user interfaces in particular are concerned, French, Belgian and German courts have often held that these are protected as independent audiovisual works, separately from the computer program they belong to.<sup>185</sup>

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<sup>180</sup> Software Directive recital 14 and art 1(2).

<sup>181</sup> *ibid* 4(a).

<sup>182</sup> This section’s overview of cases from France, Belgium and Germany which dealt with copying of non-literal elements and user interfaces is based on E Derclaye (n 43) 63–65.

<sup>183</sup> *ESI c/ Mecalog* Paris Commercial Court 22 November 1993 [1994] *Expertises* 31; *Simci c/ Digimedia* Cour d’Appel Paris (4<sup>th</sup> Ch) 16 February 1994 [1995] *Expertises* 240.

<sup>184</sup> See for example *Civ Bruxelles* 22 January 1988 [1988] *Revue Internationale du Droit d’Auteur* 363.

<sup>185</sup> See for example in France *Société Atari c/ Valadon* Cour de Cassation 7 March 1986 PIBD 1986 388 iii-127; in Belgium *Horelec et Sedimex c/ Nintendo* Cour d’Appel de Bruxelles (9<sup>th</sup> Ch) 11 April 1997 [1997] *Auers & Medea* 265. In Germany, the cases in question related to the user interfaces of

In the UK courts have—as one would expect from courts in a common law jurisdiction—relatively consistent views with respect to non-literal elements and user interfaces. British courts dealing with software copyright do sometimes deviate from what previous case law has held. However, when this happens they usually acknowledge previous case law in the area and explain why they chose to deviate.<sup>186</sup> Also, relevant US case law has affected the thinking of British judges to a certain extent.

The most famous UK cases on software copyright infringement have been discussed at length by many commentators. Most of these cases dealt with alleged infringements which took place before the Software Directive was implemented into UK law and therefore do not offer any guidance as to whether the Directive's scope extends to non-literal elements and user interfaces. The one notable exception is *Navitaire v easyJet*,<sup>187</sup> a case in which the court made multiple references to the Software Directive and the CDPA provisions implementing it. Owing to its importance, this case will be discussed at length in the next section of this chapter. However, judgments delivered prior to *Navitaire v easyJet* will be discussed here briefly because, even though they did not apply the Software Directive, they informed the thinking of the judge presiding in *Navitaire v easyJet* and will undoubtedly influence British judges in future software copyright cases.

The first British case to deal with the protection of user interfaces and non-literal elements was *John Richardson Computers Ltd v Flanders*.<sup>188</sup> The defendant's computer program was written in a different programming language but allegedly infringed the copyright protecting the structure and user interfaces of the plaintiff's program. The judge acknowledged that computer program structure is protected by copyright but focused his attention on the user interfaces of the plaintiff's program, which he found were also protected by copyright and had been infringed.

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video games: OLG Hamm [1991] NJW 2161; OLG Frankfurt a M [1993] NJW-RR 230; BayObLG [1992] GRUR 508.

<sup>186</sup> UK case law on the protection of non-literal elements and user interfaces of computer programs has been discussed extensively by many commentators. See for example DJM Attridge 'Copyright Protection for Computer Programs' (2000) 22 EIPR 563; and S Stokes 'The Development of UK Software Copyright Law: from *John Richardson Computers* to *Navitaire*' (2005) 11 Computer and Telecommunications L Rev 129. Also, for a comparison between US case law on the protection of user interfaces (as exemplified in *Apple v Microsoft* and *Lotus v Borland*) and the respective UK case law see Lai (n 97) 65-91.

<sup>187</sup> *Navitaire Inc v easyJet Airline Co Ltd and Bulletproof Technologies Inc* [2004] EWHC 1725 (Ch).

<sup>188</sup> [1993] FSR 479 (Ch).

The judge expressed the opinion that the *Altai* test was applicable, but actually applied a modified version of it to the case at hand.

One year later, in 1994, *Ibcos* dealt with allegations of code and structure copying.<sup>189</sup> Jacob J, the presiding judge, found for the plaintiff on both counts. In his judgment he focused on the literal copying which took place and held that the plaintiff's program was a compilation of other smaller programs, each one of which was protected by copyright because a substantial amount of skill and labour had been invested in them. The judge confirmed that non-literal copying can constitute copyright infringement; however, he criticised the court in *Richardson v Flanders* for employing the *Altai* test to prove such infringement. In Jacob J's view, the test is not applicable in the UK, because there are important differences between US and UK copyright law. In particular, the notion that elements in which the idea and its expression are merged are excluded from copyright protection (a notion which is part of the *Altai* filtration step) is incompatible with UK law: the latter does not prevent the copying of a general idea, but does prevent the copying of a detailed idea. Furthermore, he said that British copyright law does not dictate the search for the copyright work's 'protected kernel', which courts are supposed to identify by taking the filtration step.

The third noted UK case on non-literal copying was *Cantor Fitzgerald International v Tradition (UK)*.<sup>190</sup> This case again confirmed that program structure can be copyright protected, but most importantly elaborated on the question of when the part of the original work that has been copied is substantial. Pumfrey J, the presiding judge, said that the substantiality criterion should not be whether the copied part is essential to the function of the computer program; this would not stand, as all parts of the program are essential for it to function. Instead, he believed that the substantiality of the part copied was analogous to its originality: if substantial skill and labour was expended in creating the copied part, then this part is substantial. He said that this applies not only to literal copying, but also to copying of a program's structure and algorithms: just as the plot can form a substantial part of a novel if substantial part of the author's skill and labour went into drafting it, a program's structure and algorithms can constitute substantial part of a computer program.

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<sup>189</sup> *Ibcos Computers Ltd v Barclays Mercantile Highland Finance* [1994] FSR 275 (Ch).

<sup>190</sup> [2000] RPC 95 (Ch).

### 3.8.3 The British case of *Navitaire v easyJet*

The judges who delivered *Richardson, Ibcos* and *Cantor Fitzgerald* did not apply the Software Directive, as the facts of these cases occurred before its implementation in the UK; *Navitaire v easyJet and Bulletproof Technologies*<sup>191</sup> was the first case which was decided on the basis of the UK implementation of the Software Directive. The judgment has therefore set an important precedent in British software copyright law. Even though *Navitaire* appealed against the High Court's judgment, eventually it reached an out of court settlement with its opponents, which means that that the court's decision still stands. Its findings have already been applied in the subsequent cases of *Nova Productions v Mazooma Games* and *Nova Productions v BellFruit Games*,<sup>192</sup> which dealt with the non-literal copying of the screen outputs of a computer game belonging to the claimant. *Navitaire v easyJet* will surely continue to influence future cases in the UK. For the purposes of this chapter, it provides an interesting discussion of the Software Directive as far as the scope of software copyright and its infringement are concerned.

*Navitaire* owned the copyright in *OpenRes*, an airline reservation system consisting of various computer programs and databases which was designed for call centre agents and internet users wishing to make a booking. The main components of the *OpenRes* system were the *OpenRes* program used by call centre agents; *Take Flight*, the program used by internet users; and a database containing, among other things, customer records and flight details. *easyJet* initially used *OpenRes* but later substituted it with a new system called *eRes*, which was created by *Bulletproof Technologies*, the second of the defendants in this case. The new system's user interface was meant to be very similar to the one employed by the *OpenRes* system: it looked the same (the command line and graphical user interfaces were very similar) and felt the same (the system behaved in the same way as far as the user was concerned). The defendants had access to the source code of *Take Flight* but not that of the *OpenRes* program. It was accepted by both parties that the architecture, source code and object code of all components comprising the *eRes* system (two of its most important components were the *eRes* program and the *easyJet.com* program which substituted *Take Flight*) had no similarity to their equivalent

<sup>191</sup> *Navitaire v easyJet* (n 187). A brief discussion of this case appears in Stokes (n 186) 131-133.

<sup>192</sup> *Nova Productions Ltd v Mazooma Games Ltd & Others* [2006] EWHC 24 (Ch), [2006] All ER (D) 131 (Jan); *Nova Productions Ltd v BellFruit Games* [2005] All ER (D) 310 (Oct).



programs within the OpenRes system. The two systems consisted of many different components, but the ones discussed in this section are listed in Table 1 below:

Table 1: System components at issue in *Navitaire v easyJet*

| OpenRes system<br>(author: Navitaire)                          | eRes system<br>(authors: easyJet and Bulletproof Technologies) |
|--|--|
| OpenRes program<br>Take Flight<br>Schedule Maintenance program | eRes program<br>easyJet.com program                            |

*Navitaire v easyJet* dealt with a variety of non-literal and literal infringement claims, but it was essentially a ‘look and feel’ case. The plaintiff claimed that eRes had infringed its copyright in OpenRes on many counts by way of ‘non-textual copying’. The term refers to fact that the components of the eRes system had completely different source and object code from those of the OpenRes system and yet the two looked and felt the same; in other words Navitaire used the term as an alternative to ‘non-literal copying’. Navitaire claimed that there were numerous aspects to the alleged non-textual copying. The ones relevant for the purposes of this chapter and considered in detail by the court were: copying of commands used in the OpenRes program; copying of screen displays exhibited by some components of the OpenRes system; and copying of the five-step booking sequence used by Take Flight. Navitaire also maintained that as a result of the non-textual copying which took place, the ‘business logic’ of OpenRes had been copied. Non-textual copying aside, Navitaire claimed that unauthorised alterations of the source code of Take Flight took place prior to its substitution with easyJet.com, such as the creation of foreign language versions of the program.<sup>193</sup> Listed below are the court’s answers to Navitaire’s contentions which dealt with software copyright infringement.

#### ***The court’s view on copyright protection of user interfaces in general***

Before seeing how Pumfrey J, the presiding judge who in 2000 had also delivered the judgment in *Cantor Fitzgerald*, dealt with each specific claim put forward by Navitaire, it is worth

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<sup>193</sup> Navitaire also claimed that the defendants breached its copyright in the database within the OpenRes system, a claim which will not be discussed here as it is not relevant to the Software Directive.



discussing his view on whether user interfaces in general (and not just specifically in the case at hand) are eligible for copyright protection. His observations—which were expressed in the context of dealing with Navitaire’s claims regarding infringement of the OpenRes commands—illuminate why he dealt with all of Navitaire’s non-textual copying claims the way he did.<sup>194</sup> The judge said that, whereas the code underlying an interface is of course susceptible of copyright, the interface itself is not: it is a ‘functional effect’ of the program and a respectable body of case law says that copyright is not concerned with functional effects. Therefore, if the look of a particular user interface has been reproduced in a new program but the code underlying the interface has not been copied, there is no software copyright infringement. He also said that the question of user interface copyrightability cannot be answered by using the argument that an interface is analogous to the plot of a book and therefore sometimes eligible for copyright protection. He acknowledged that British courts have held that the plot of a book can be protected by copyright if it is very detailed; effectively they have accepted that very detailed ideas can be protected by copyright if they represent a substantial part of the skill and labour expended in the creation of the work and therefore a substantial part of the work.<sup>195</sup> However, the plot is part of the book, whereas a user interface is not part of the program. For instance, commands from a command line interface could be renamed and the program would still work in the same way. Pumfrey J also said that finding interfaces not eligible for copyright is consistent with the distinction between the idea (which is susceptible of copyright) and its expression (which is not).

Pumfrey J’s opinion that user interfaces are not eligible for copyright protection should be contrasted with his finding in *Cantor Fitzgerald* that non-literal elements such as the structure and algorithms are protected. The two views are compatible: the structure of a computer program is part of the program and therefore can be likened to the plot of a book, whereas the user interface of a program is not part of it, but rather one of the effects it produces when run on a machine. Therefore the former can be protected if substantial skill and labour has been invested in it, whereas the latter cannot. The judge’s view on the copyrightability of user interfaces in general offers insight into why most of Navitaire’s non-textual copying claims failed.

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<sup>194</sup> Pumfrey J’s views on user interfaces in general are expressed in para 94 of *Navitaire v easyJet*.

<sup>195</sup> Examples of cases where it was held that book plots can be protected by copyright are given in para 73 of *Navitaire v easyJet*; *Harman Pictures NV v Osborne* [1967] 2 All ER 324 (Ch) and *Designers’ Guild Ltd v Russell Williams Textiles Ltd* [2001] 1 WLR 2416 (HL).

### Commands

The OpenRes program had a command line user interface. Navitaire maintained that commands which could be typed in by call centre agents using its OpenRes program—for instance when searching for flights between Gatwick and Edinburgh on a particular date—were worthy of copyright protection. It distinguished between individual command words or letters and ‘complex’ commands and defined the latter as ‘those where the user enters a mixture of command characters and data and has a number of sub-options and choices.’<sup>196</sup> The court found that 44 per cent of the OpenRes command set had been reproduced in eRes. However, Navitaire’s claim failed because the court held that the individual commands were not susceptible of copyright: isolated single words do not qualify as literary works.<sup>197</sup> As for the complex commands, Pumfrey J said that, put together, they and the syntax used in formulating each one of them constituted a programming language and therefore were not eligible for copyright protection.<sup>198</sup> He based his view on recital 14 of the Software Directive, which states that to the extent that programming languages are ideas and principles, these ideas and principles are not susceptible of copyright. He admitted that this interpretation would need to be confirmed by the Court of Justice, though he did not actually refer the question to the ECJ.

It should be noted here that in the earlier case of *Data Access v Powerflex* the Australian High Court had also dismissed the claim that words used as commands in the plaintiff’s program were protected by copyright, though the rationale behind this dismissal was different to the one used in *Navitaire v easyJet*.<sup>199</sup> More specifically, the plaintiff in that case had argued that each command constituted a copyright computer program, because by typing it the user instructed the computer to perform a particular function.<sup>200</sup> The High Court disagreed: the words were ‘ciphers’ which activated an underlying set of instructions—the instructions themselves were protected by copyright but the ‘ciphers’ were not.

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<sup>196</sup> *Navitaire v easyJet* para 26.

<sup>197</sup> *ibid* para 80.

<sup>198</sup> *ibid* paras 87–89.

<sup>199</sup> *Data Access Corporation v Powerflex Services Pty Ltd* [1999] HCA 49.

<sup>200</sup> According to s 10 of the Australian Copyright Act a computer program is ‘a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result.’

Navitaire had also argued that all the commands put together could be protected as a compilation under section 3(1)(a) of the CDPA. Pumfrey J rejected this argument as well. He found that that all the commands put together did not constitute a compilation, but merely an accretion. In fact, he concluded that all commands viewed together as a group are again a computer language and as such not entitled to copyright.<sup>201</sup>

### **Screen displays**

Navitaire had alleged infringement of its copyright vested in two types of screen displays visible to call centre agents when using the OpenRes system. First, the character-based displays of the VT100 screens;<sup>202</sup> and secondly, graphical user interface screens of the Schedule Maintenance module, one of the components of the OpenRes system.<sup>203</sup>

The VT100 screens were displayed in character-based terminals and would appear as a the OpenRes system's response to various commands typed in by the agents. The judge held that these screens were in fact tables and therefore literary works. However, they represented ideas which underlie the interfaces of the system and therefore, in view of article 1(2) of the Software Directive, were not susceptible of copyright.<sup>204</sup> On the other hand, the graphical user interface screens were found to be artistic works whose creation required sufficient skill and labour and therefore worthy of copyright; thus easyJet was found to have infringed Navitaire's copyright by replicating the icons which appeared in those graphical user interfaces. It should be noted here that, even though the GUI screens were deemed susceptible of copyright, the copyright vested in them was unrelated to the copyright protecting the OpenRes system and stemming from the Software Directive.

### **Take Flight's five-step booking sequence**

Even though it was common ground between the parties that the source code of easyJet.com (which was actually the only component of the eRes system developed by easyJet and not by

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<sup>201</sup> Para 92.

<sup>202</sup> VT100 screens were originally video display terminals manufactured by the Digital Equipment Corporation. These days they are the type of character-based terminals (ie terminals which display only printable characters) most commonly used for network connections.

<sup>203</sup> The judge dealt with the screen claims in paras 95-99 of the judgment.

<sup>204</sup> According to art 1(2) of the Software Directive ideas which underlie a computer program and its interfaces are not eligible for copyright protection.

BulletProof Technologies, the second of the defendants in the case) did not infringe the source code of Take Flight, Navitaire claimed that the latter program's five-step booking process had been copied. Take Flight served internet users with pages in a predefined order so that a booking could be carried out. The five steps were as follows: user asks for available flights/Take Flight returns available flights and user selects/Take Flight displays details and price of selected flights and invites booking/user books by giving personal and credit card details/Take Flight confirms booking. The judge found that the five-step sequence was not protected by copyright: it was obvious (it mimicked the standard sequence followed by a call centre agent working for any airline) and did not amount to a substantial part of the source code underlying Take Flight. Navitaire's claim failed.

### ***The business logic of the OpenRes system***

The section of *Navitaire v easyJet* dealing with the applicant's claim that the business logic of the OpenRes system had been infringed is the most interesting one of the judgment.<sup>205</sup> It is also the most complicated one: the judge muses on what courts said in *Richardson v Flanders* and *Ibcos* on the issue of non-literal copying, but avoids stating explicitly whether he agrees with them or not.

'Business logic' is a term often used in software architecture, albeit one difficult to define. Navitaire admitted to this difficulty, and claimed that, in the case of OpenRes, the term described the interaction between the commands typed in by users and the screens appearing as a result of those commands. For Navitaire, the fact that the functions of OpenRes and eRes were identical to the user proved that the defendants had non-textually copied the source code of OpenRes in its entirety. Navitaire invoked *Ibcos*: the business logic constituted a detailed idea and therefore, just like a detailed book plot, represented substantial skill and labour and was eligible for copyright protection.

On the question of under which circumstances ideas are protected, Pumfrey J said that he sides with what Lord Hoffmann said in *Designer's Guild v Russell Williams*: an idea expressed in a copyright work can be protected if two conditions are met. First, it must be of literary, dramatic, musical or artistic nature—for instance, an invention described in a literary work is not entitled to copyright. And secondly, the idea must be original and not commonplace; if original, it



constitutes substantial part of the literary work and is therefore covered by the copyright protecting the work.<sup>206</sup> It should be noted that Lord Hoffmann's view has been severely criticised by Bently and Sherman for being too permissive with allowing ideas to enter the scope of copyright.<sup>207</sup> If every detailed idea of a literary nature is protected by copyright, the public policy reasons behind the exclusion of ideas from the realm of copyright are disregarded. It is in the interests of the public to ensure that different works which deal with the same topic or subject matter are made; that functional ideas remain free from copyright; and that expression remains free.

Pumfrey J rejected the plaintiff's business logic claim on many counts. He found that, from a business perspective, OpenRes' overall functionality was the same as that of any other airline ticket booking system. They all follow the same process: check flights/check seat availability/reserve/take passenger and payment details/record transaction/make sold seats unavailable to future customers. Therefore no substantial skill and labour went into designing the system's business logic. Furthermore, the judge rejected the argument that business logic is analogous to book plots. First, because the defendants did not have access to the system's source code and eRes had completely different source code from OpenRes. And secondly, because the OpenRes system did not have a plot. It resembled a book of instructions for a booking clerk, and such a book does not have a plot (ie a theme, events, narrative flow), but 'merely a series of pre-defined operations intended to achieve the desired result in response to the requests of the customer.'<sup>208</sup> Last but not least, Pumfrey J rejected in general the idea of identifying a program's business logic and trying to prove that it is protected by copyright. The overall function of a program is implemented by its interfaces; and since the Software Directive clearly says that ideas underlying interfaces are not protected, affording protection to the overall function ('business logic') of the program would be a way to circumvent the Directive.<sup>209</sup>

#### **Alterations to Take Flight's source codes**

This was one of the few claims in *Navitaire v easyJet* involving alleged literal copying. The judge found that, before Navitaire substituted Take Flight with easyJet.com, it had performed

<sup>205</sup> The judge dealt with Navitaire's business logic claim in paras 107-136 of the judgment.

<sup>206</sup> *Designer's Guild Ltd v Russell Williams (Textiles) Ltd* (n 195).

<sup>207</sup> Bently and Sherman (n 34) 173-175.

<sup>208</sup> *Navitaire v easyJet* para 125.



unauthorised alterations to Take Flight's source code. For instance, easyJet modified the program so that email booking confirmations could be sent to passengers and also created a French version of the program. It will be recalled that Take Flight was the only module of the OpenRes system to whose source code easyJet had access to. The Take Flight licence granted by Navitaire allowed easyJet to customise the program to a certain extent, but the judge found that easyJet went beyond this. Therefore, easyJet had infringed Navitaire's copyright by creating unauthorised copies of Take Flight's source code and modifying it without permission.

### 3.8.4 Non-literal elements and user interfaces: the way forward

The overview of European case law on the infringement of software non-literal elements and user interfaces has demonstrated that the relevant provisions of the Software Directive are often construed differently in different Member States and sometimes differently by different courts within the same Member State.

As far as user interfaces are concerned, there seems to be a consensus amongst EU Member States that the graphical user interface of a computer program is protected as an audiovisual work independently from the computer program itself. However, it is not possible to distinguish a trend as to the protection of non-graphical user interfaces, such as command line interfaces. The question of user interface copyrightability is one bound to arise time and again before national courts: as Pumfrey J noted in *Navitaire v easyJet*, it is common business practice to copy the look and feel of a successful program without copying any of the underlying source or object code.<sup>210</sup> And by stretching article 1(2) of the Software Directive in such a way that most user interfaces qualify for copyright protection, there is a danger that fewer new computer programs would be produced and that successful existing ones would hold large market shares without being challenged by competitors.

As far as non-literal elements are concerned, due to the lack of national case law dealing with this issue it is not possible to identify a particular trend. Even though British courts have dealt with copying of non-literal elements (and found that they can be protected by copyright), as already mentioned in section 3.8.2 these cases applied the CDPA before it was amended to

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<sup>209</sup> *ibid* para 130.

<sup>210</sup> *ibid* para 4.

reflect the Software Directive. However, again it is safe to say that the software industry would benefit if copyright protection for non-literal elements were to be spread thin. If the Software Directive is construed as offering ample protection to non-literal elements such as structure, sequence of operations and overall function of computer programs, competition and innovation in the European software industry will be harmed. This will be the case not only because software developers will be dissuaded from reverse engineering popular programs and incorporating structural and functional elements thereof into new programs; but because experienced programmers moving between different software developing companies will become walking liabilities: programmers are hired on the basis of their experience, and if they happen to work for two successive companies on similar software development projects there will be a high risk of infringing the first company's copyright, as they will be familiar with the structure of the first program. If non-literal elements are rigorously protected, the creative freedom of programmers is hammered, which is to the detriment of the software industry.<sup>211</sup>

Striking the right balance between protecting the copyright of software proprietors and allowing competitors to use freely ideas behind existing software so as to bring new software into the market is difficult. As already pointed out, the Software Directive does not offer guidance on when interfaces and non-literal elements are ideas and when they are expressions of ideas; therefore, national courts in the EU must devise a test on software infringement which can identify first whether copied elements of a computer program are protected by copyright and secondly whether a copyright infringement took place. Many commentators have suggested that the *Altai* test (abstraction, filtration, comparison) could be used by European courts.<sup>212</sup> It is a valid suggestion: software copyright laws in the USA and in the EU are quite similar and the test would be compatible with the Software Directive. The second and most crucial part of the step, filtration, puts into practice the idea/expression dichotomy invoked in article 1(2) of the Software Directive: it is desirable to withhold copyright protection from elements which are dictated by efficiency or external conditions and in which therefore the idea is merged with its expression; and it is logical to withhold protection from non-original elements. The filtration stage can be enriched by withholding copyright protection from elements which are methods of operation: even though the Software Directive does not provide for this, Article 2 of the WCT does, and EU Member States are bound by this. Most user interfaces should be excluded from

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<sup>211</sup> Attridge (n 186) 567-568.

<sup>212</sup> P Stone 'Lessons from America: Filtration of Functionality from Software Copyright' (1997) 13 *Computer L and Security Rep* 15, 20; Derclaye (n 43) 66-67; Lai (n 97) 40.

software copyright at the filtration stage: either because they are functional elements and as such should not be covered by copyright, or because they are not part of the program but instead one of the effects produced by the operation of the program. In any case, as already mentioned above, there is a trend both in the continent and in the UK to protect graphical user interfaces by copyright as artistic audiovisual works, and this protection is sufficient.

Furthermore, in cases where courts find that the structure or user interface of a computer program is not protected under the Software Directive, software proprietors can argue that the element in question is protected as a database under the Database Directive, either by copyright or by the *sui generis* database right. For instance, the various screen displays of a user interface can comprise a database, or elements within the same screen display can be seen as a database. The same can be argued for a program's structure. As illustrated in *Navitaire v easyJet*, judges are not always willing to accept such an argument, as the software owner will need to prove that the arrangement of the various elements constituting the database is original (if copyright protection is sought) or that substantial investment of capital or labour went towards the creation of the database (if *sui generis* database right protection is sought). The complexities of asserting that a computer program component is protected under the Database Directive are explored in chapter 3 of this thesis. However, for the purposes of this chapter, suffice to say that software owners have the option of invoking the Database Directive for the purpose of protecting non-literal elements and user interfaces of their programs; this, combined with the limited protection offered by the Software Directive, is sufficient for safeguarding the interests of software developers.

Last but not least, as already discussed earlier in this chapter, British courts should abandon the 'skill and labour' criterion when deciding whether non-literal elements and user interfaces are protected under the Software Directive—*Navitaire v easyJet* demonstrated that British judges still employ the criterion. It should not matter whether a lot of skill and labour was invested in drawing up a computer program's structure: the question that should be asked instead is whether the structure is an idea or the expression of an idea and whether the structure is the author's own intellectual creation.<sup>213</sup>

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<sup>213</sup> Software Directive arts 1(2) and (3).

#### 4 PATENT PROTECTION FOR COMPUTER PROGRAMS

The Software Directive protects the expression of the ideas embodied in a computer program. Competitors are free to copy these ideas and create new computer programs, so long as they do not reproduce a substantial part of the object or source code of the original one. However, in certain cases it is possible to protect not only the expression of the ideas underlying programs, but also the ideas themselves and prohibit third parties from creating new programs which are based on these same ideas. This can happen if a computer program is part of a patented invention. As mentioned earlier in this chapter, Article 52(2)(c) EPC provides that computer programs *per se* are not patentable subject matter. Notwithstanding this exclusion, the European Patent Office (EPO) and national patent authorities have granted numerous patents for software-related inventions: applications have been accepted for inventions which employ computer programs or for apparatus (computer or any other type of hardware) which incorporates computer programs. In fact, as we will discuss below, the EPO has gone as far as state that it is possible to secure a patent for a computer program on its own, without the patent claim making any reference to an apparatus carrying the program—a position clearly contradicting the wording of the EPC.

At present, the EU does not control patent policy in its Member States. The latter (unlike the EU itself) are all signatories to the EPC, but this is an intergovernmental convention which was not signed in the context of the EU; accordingly, the EPO is not a Community institution. Patents can be acquired either from national authorities or directly from the EPO. EPO grants so-called European Patents, which are valid in a number of countries determined in the applicant's claim. In theory, acquiring a European Patent saves the applicant from having to file multiple claims in different countries, but in practice the system is not an efficient one: many countries require that a European Patent is translated in their official language for the patent to be valid in their territory, whereas any disputes arising from the patent have to be heard in the competent national courts—a practice often leading to contradictory decisions delivered in various countries.

In recent years, the Commission has taken two initiatives to adopt legislation that would bring patent policy in Europe under its auspices. The first was its proposal in 2000 for a Regulation for the creation of a Community Patent.<sup>214</sup> According to that proposal, Community Patents will be awarded by the EPO and be valid throughout the EU; any disputes arising from these patents



will be heard by the Community Patent Court, which will be set up as a judicial panel attached to the Court of First Instance. This proposal has been stalled because of concerns that the process of examining the patent claims and translating them in all or a number of EU official languages would be too costly. The second initiative envisaged adopting Community legislation specifically on the issue of patents for computer-related inventions. In this section, we will discuss briefly EPO's case law on such inventions as well as the failed Community proposal for legislation which would have codified this case law and taken patent policy for computer-implemented inventions away from the EPO and under the jurisdiction of the Community.

## **4.1 Patentability of computer-implemented inventions under the EPC**

According to Article 52(1) of the EPC, any invention which is new, involves an inventive step and is susceptible of industrial application may be patented. However, Article 52(2) excludes certain types of subject matter from patentability: discoveries, scientific theories and mathematical methods; aesthetic creations; computer programs and schemes, rules and methods for performing mental acts or playing games or doing business (this latter type of subject matter is listed in Article 52(2)(c)).

The common denominator of all excluded subject matter—discoveries, mathematical methods, computer programs etc—is that they lack technical character. And the reason behind excluding from patentability subject matter of a non-technical nature is that the EPC was drafted on the basis of pre-existing national patent laws in Europe, all of which required an invention to have a specific technical application in order to be eligible for a patent. In fact, prior to the adoption of the EPC in 1973, national courts had denied patent protection to computer programs even when the corresponding national laws did not explicitly exclude computer programs from patentability.<sup>215</sup>

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<sup>214</sup> Proposal for a Council Regulation on the Community patent COM(2000) 412 final OJ C337 E/278.

<sup>215</sup> Based on a speech delivered by Gunter Gall, then Director of Legal Affairs at the EPO, in a paper given at the OFDI seminar in Paris on 17 April 1985. Quoted in R Hart 'The Case for Patent Protection for Computer Program-related Inventions' (1997) 13 *Computer L & Security Rep* 247, 250.



However, despite the intention of signatories to the EPC to exclude computer programs from the scope of the EPC, they did not succeed. The ‘back door’ to the patentability of software was paragraph (3) of Article 52, which provides that subject matter and activities listed in paragraph (2) are excluded from patentability only when patent applications relate to these types of subject matter or activities ‘as such’. In other words, a patent claim for a computer program alone will be dismissed, but a patent claim for an invention which involves more than a computer program (for instance an X-ray machine controlled by a computer program<sup>216</sup>) cannot be dismissed on the grounds that the invention involves use of a computer program. If a computer program is part of an invention which has been patented because it is new, inventive and susceptible of industrial application (ie because it conforms with the requirements of article 52(1) of the EPC) the program in question will be covered by the patent. This interpretation of article 52(2)(c) was confirmed when the EPO Guidelines were amended in 1985. The amended Guidelines stated that the EPO will grant patents to inventions which make a contribution to the state of the art in a technical field, even if these inventions involve the use of a computer program.<sup>217</sup> However, the Guidelines also clarified that a computer program on its own or on a carrier (for instance on floppy disk) or loaded on hardware is not patentable.<sup>218</sup> It should be noted here that the Guidelines are not legally binding—as opposed to the EPC and its Implementing Regulations<sup>219</sup>—and the EPO may deviate from them. They are frequently updated to reflect recent EPO case law and practice and their purpose is to assist EPO staff in examining claims, as far as both procedure and substantive examination of claims is concerned. However, though not legally binding, patent applicants and legal practitioners consult them when drafting their claims and they can expect that EPO will not deviate from them when examining their claims.<sup>220</sup>

One would have expected that, when examining a claim involving a computer program, the EPO would start by asking whether the invention falls under the exclusion of Article 52(2): if the invention consists of a computer program alone or a computer program together with a business method or a mathematical method, the claim must be dismissed. However, for many years—up

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<sup>216</sup> A patent for such an invention was granted in *Koch and Sterzel/X-ray apparatus* T26/86 [1988] EPOR 72, [1988] OJEP 14.

<sup>217</sup> 1985 EPO Patent Examination Guidelines (EPO Guidelines) C-IV 2.2.

<sup>218</sup> *ibid* para 2.3.

<sup>219</sup> Implementing Regulations to the EPC (last amendment 9 December 2004) <<http://www.european-patent-office.org/legal/epc/e/ma2.html>> (accessed 17 November 2005).

<sup>220</sup> 2005 EPO Guidelines General Part 3.

until *Pension Benefits*<sup>221</sup> was delivered, a decision which is discussed below—this was not path the that the EPO had been following. Instead, it would begin assessing the patent claim by asking whether the invention had a technical character, in other words whether the invention made a technical contribution to the known art or solved a technical problem. If the answer was affirmative, the invention would be an invention for the purposes of Article 52(1) and therefore not excluded from patentability; there was no need to apply Article 52(2), as this provision listed non-technical categories of subject matter. If on the other hand the invention lacked technical character, the EPO treated this as virtual proof that it fell within the scope of Article 52(2).<sup>222</sup>

This method of assessing patent claims stems from the premise upon which the EPC was drafted: that only inventions of a technical character can be patented. And even though Article 52 makes no reference to the requirement for technical character, the Implementing Regulations confirm that the technical character of an invention is an essential requirement for its patentability.<sup>223</sup>

*Vicom*<sup>224</sup> was one of the first cases where the EPO applied the technical character criterion to a software-related invention. In that case the EPO Technical Board of Appeal—following what the 1985 Guidelines stated—held that an invention which fulfils the patentability criteria of the EPC should not be excluded from protection just and only because it is implemented by a computer program. The patent claim in that case involved a method and an apparatus for digitally processing images, which employed a certain mathematical procedure expressed as an algorithm. The Board of Appeal granted a patent because it found that the claim was not for a computer program as such but instead for a computer utilising a program to carry out a technical process; in other words, the invention was of a technical character and therefore an invention for the purpose of Article 52(1). More successful applications for inventions employing software followed. For instance, in *Kearney*<sup>225</sup> the Board of Appeal granted a patent for a computer program which alerted machine operators when their machines needed to be repaired or when a damaged tool needed to be replaced.

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<sup>221</sup> *Pension Benefits Systems Partnership* T 931/95 [2001] OJEP 441.

<sup>222</sup> Bently (n 34) 397-399.

<sup>223</sup> Implementing Regulations to the EPC rules 27(1)(b) and 29(1).

<sup>224</sup> *Vicom/Computer-related invention* T208/84 [1987] EPOR 74.

<sup>225</sup> *Kearney/Computer-related invention* T42/87 [1997] EPOR 236.

The EPO did not stop at declaring that inventions involving computer programs are not excluded from patentability. In two decisions involving applications by IBM, the Board of Appeal went as far as stating that computer programs ‘as such’ can be patented, thus clearly disregarding the wording of Article 52(3) of the EPC. In *IBM/Computer programs* (T935/97) the claim was for a method allowing a window obscured by another in a data-processing system to be brought forward or alongside the other window.<sup>226</sup> *IBM/Computer programs* (T1173/97) related to a resource recovery in a computer system.<sup>227</sup> Even though the EPO Examining Board rejected the claims related to the computer program products, it said that it is possible to patent software on its own. The Board of Appeal dealt with the two cases by using identical reasoning. Essentially, the Board explored the scope of Article 52(2)(c). It reached two conclusions. First, that a computer program product is patentable if the program has a technical character which goes beyond the normal physical modifications (for instance electrical currents) caused to the hardware by the execution of the instructions given by the program: running the program must result in additional technical effects which go beyond this normal physical interaction between the program and the hardware it runs on. The Board’s second finding was that it is possible to grant a patent for a computer program on its own; it is not necessary that the claim refers to a program on a carrier (eg a CD-ROM) or on a device or apparatus. The Board believed that when the EPC refers to computer programs ‘as such’ being excluded from patentability, it actually refers to mere abstract creations which lack technical character. As far as IBM’s claims in both cases were concerned, the Board sent them back to the Examining Division to determine whether, in the view of the analysis conducted by the Board the two computer program products would be patentable. The two *IBM* decisions have effectively paved the way for patent claims for computer programs ‘as such’, in other words programs which are not part of a computer-implemented invention. Even though the Board of Appeal stressed that a computer program can be patented only if it has a technical character, it seems that it has circumscribed Articles 52(2)(c) and 53 of the EPC, which states unequivocally that computer programs ‘as such’ are not patentable subject-matter.

It should be noted that in a number of cases coming before the EPO and national patent authorities and courts the applicants have failed to demonstrate that a computer program has a

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<sup>226</sup> [1999] EPOR 301.

<sup>227</sup> [2000] EPOR 219.

technical character. One such example is *Gale's Application*,<sup>228</sup> where the patent claim was for a computer's read-only memory (ROM) carrying a computer program which calculated square roots using a new method. The UK Court of Appeal found that even though the program made the computer function better, it did not embody a technical process which existed outside the computer, nor did it solve a technical problem lying within the computer. The claim in *Fujitsu's Application*<sup>229</sup> was rejected on similar grounds. The patent application in that case was for a computer-related invention which chemists could use to produce digital models of hybrid chemicals. The English Court of Appeal held that, even though the invention saved chemists a lot of time and effort because it relieved them from having to build models manually, it did not have a technical effect. In fact, the court held that even though inventions in both *Vicom* and *Fujitsu* could be used for creating digital images, the former had been granted a patent because it enhanced the display of images, whereas the latter was not patentable because it simply enabled images to be displayed quicker.

Patent applications for computer-related inventions often involve methods of doing business. As mentioned earlier, business methods 'as such' are excluded from patentable subject matter by virtue of Articles 52(2)(c) and 52(3) of the EPC. In order to acquire a patent for a business method which employs software, again it is required to demonstrate that the method is of a technical character. In *Merrill Lynch Application*<sup>230</sup> the invention was computerised trading system for securities. The English Court of Appeal found that the computer program was not patentable because it was a method of doing business and had no technical effect. In contrast, in *Petterson/Queuing system*<sup>231</sup> the EPO Technical Board of Appeal granted a patent for a Swedish system which determined the queue sequence for serving customers at a number of service points. The system had many components: a turn-number allocating unit, an information unit, a selection unit and a computer program that decided which turn-number was to be served at which service point. According to the Board the invention was patentable because it solved the problem of how the various components of the system should interact; the computer program did not facilitate a business method but instead solved a technical problem.

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<sup>228</sup> [1991] RPC 305 (CA).

<sup>229</sup> [1997] RPC 608.

<sup>230</sup> [1989]RPC561.

<sup>231</sup> T2/92 [1995] OJEPO 605, [1996] EPOR 1.



A decision delivered on another business method case by the Technical Board of Appeal in 2001 has further explored the question of when software is patentable and has subsequently influenced EPO's case law: it effectively shifted the weight from the question of whether the invention has a technical character and is therefore an invention within the scope of Article 52(1) to whether it is new and involves an inventive step—two of the patentability requirements listed in the same Article. *Pension Benefits Systems Partnership*<sup>232</sup> was about a software-implemented business method, but in its decision the Board made some comments about the patentability of computer programs in general, whether they implement a business method or any other invention. The case was about a computer-related business method for managing funds in a an employees' pension scheme. The software in question calculated the amounts due to pensioners by reference to a set of standard calculating factors such as actuarial averages of the life-span of all employees subscribing to the pension scheme. The applicant put forward two claims. The first was for the method used for making the calculations. The second claim was for the apparatus (in other words the computer) used for executing the method of calculation. The method claim was dismissed as unpatentable subject matter because it was a business method 'as such'. However, the Board of Appeal found that the apparatus was on principle an invention in the sense of Article 52(1) of the EPC. It said that any computer system suitably programmed for use in a particular field (even if that field is business or economy-related) is of a technical character. More specifically, the Board found that an 'apparatus constituting a physical entity or concrete product suitable for performing or supporting an economic activity, is an invention within the meaning of Article 52(1) EPC'.<sup>233</sup> Having already established that any apparatus claim for a computer carrying a computer program is an invention of a technical character, the Board moved on to examine if the invention at hand involved an inventive step, as required by Article 52(1). In essence, the Board shifted the focus from whether a computer program carried in hardware has a technical character and is therefore patentable to whether the computer program involves an inventive step. In the case at hand, the Board found that the invention did not involve an inventive step because it did not provide the answer to a technical problem; instead it was an invention which lay in the field of economy. Essentially, *Pension Benefits* made three points. First, it confirmed that a claim for a business method will be considered an invention if it has a technical character—in the case at hand the business method was of a purely administrative, actuarial and financial character. Secondly, it suggested that almost all apparatus

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<sup>232</sup> T931/95 [2001] OJEP 441. For a brief discussion of the case see R Whaite and A Laakkonen 'Case Comment: The EPO Leads the Way, but Where to' (2001) 23 EIPR 244.

<sup>233</sup> *ibid* 453.



claims concerning business methods are of technical character and therefore inventions within the scope of Article 52(1). And thirdly, it held that, given that the technical character of apparatus claims is self-evident, the EPO should directly examine the questions of inventive step and novelty.

The findings of *Pension Benefits* have been applied to cases which subsequently came before the EPO.<sup>234</sup> However, the UK Patent Office has rejected *Pension Benefits* in a number of its decisions,<sup>235</sup> as it contradicts many Court of Appeal decisions—such as *Merrill Lynch* and *Fujitsu*—which have rejected the argument that software-related inventions are of a technical character if the claim is for an apparatus (a computer or any other piece of hardware) carrying a computer program. In general, British courts tend to dismiss both method and apparatus claims for business methods, even when the applicant can demonstrate that there is a technical contribution.<sup>236</sup>

The 2005 version of the EPO Guidelines summarises the current practice followed by EPO as far as computer-implemented inventions are concerned.<sup>237</sup> ‘Computer-implemented inventions’ is a blanket term used by the Guidelines to refer to any of these: a computer program as such; any type of programmable apparatus loaded with a computer program which realises the novel features of the claimed invention; a method for operating such an apparatus loaded with a computer program.

According to the Guidelines, a computer program claimed either by itself (as held in the *IBM* decisions) or on carrier or an apparatus is an invention within the meaning of Article 52(1) if it can bring about, when run on a computer, a technical effect which goes beyond the physical interactions between the program and the computer. Such a further technical effect (again as prescribed in the *IBM* decisions) may be found for instance in the control of an industrial process or in processing data which represent physical entities. When a claimed invention involves a

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<sup>234</sup> *Comvik/Two identities* T641/00 OJEP 352; *International Computers/Information modelling* T49/99 (EPO Technical Board of Appeal 5 March 2002).

<sup>235</sup> See for instance *Pintos Global Service's Application* O/171/01 (Patent Office 6 April 2001); *Hutchins' Application* [2002] RPC 8; and *James Shanley* O/422/02 (Patent Office 16 October 2002).

<sup>236</sup> For a comparison between the approaches of the EPO and the UK Patent Office towards the patentability of business methods see M Likhovsky 'Editorial: Fighting the Patent Wars' (2001) 23 EIPR 267.

<sup>237</sup> 2005 EPO Patent Examination Guidelines C-IV 2.3.6. The Guidelines are available at <[http://www.european-patent-office.org/legal/gui\\_lines/e/index.htm](http://www.european-patent-office.org/legal/gui_lines/e/index.htm)> (accessed 30 November 2005).

computer program or a business method or both and also encompasses an apparatus, it is—according to *Pensions Benefits*—*de facto* considered an invention within the scope of Article 52(1). And business methods in general are patentable if they are proven to have a technical effect. Again in view of *Pension Benefits*, when the EPO examines such claims (ie ones involving an apparatus) it should consider directly the questions of novelty and inventive step, as the technical character of the invention is self-evident. It is evident from the Guidelines how much the EPO has stretched the scope of Article 52(1) since the EPC was adopted. The exclusion of computer programs from the realm of patentability seems to exist only in the text of Article 52(2)(c): in reality computer programs can be—and in fact on numerous occasions have been—patented. The signatory parties to the EPC excluded software from its scope because they believed it to lack technical character, but it is obvious that, over the years, the lobbying of European software producers has caused the EPO to reconsider this exclusion and, in clear disregard of the wording of Article 52(1), accept that software can in fact be patented.

Even though the EPO and national patent authorities and courts have progressively expanded the scope of Article 52(1) so as to cover not only computer-implemented inventions but also computer programs as such, the EPC and the case law it has generated are not as accommodating towards software as US law is.

The main difference between the EPC and US patent law is that the latter does not require computer-related inventions to have a technical effect. US law provides that any new and useful process, machine, manufacture or composition of matter is patentable; no categories of subject matter are excluded from patentability.<sup>238</sup> In 1996 the US Patent and Trademark Office revised its guidelines for examination of patent applications: the new Guidelines stated that software can be patented if it causes a computer to function in a particular fashion—there was no requirement that running the program should produce a technical effect.<sup>239</sup> Since then a plethora of software produced in the USA has been patented. However, in contrast to what the EPO Board of Appeal found in the two *IBM* cases, US patent law does not allow patents for computer programs as such, ie not incorporated in hardware or embodied in tangible mediums such as floppy discs or

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<sup>238</sup> 35 USC 101. For a comparison between patent laws in the USA and Europe see D Koo 'Patent Copyright Protection of Computer Programs' [2002] IPQ 172.

<sup>239</sup> US Patent Office Manual of Patent Examining Procedure para 2106 (latest revision August 2005) <<http://www.uspto.gov/web/offices/pac/mpep>> (accessed 30 November 2005). In general, US law does not require an invention to have a technical effect for it be patentable.

CD-ROMs.<sup>240</sup> In this aspect, US law is more restrictive than the EPC as far as the patentability of computer programs is concerned.

The question of whether business methods are patentable subject matter under US law has been resolved in the well-known case of *State Street Bank*.<sup>241</sup> In that case the Federal Circuit Court of Appeal held that a business method is indeed patentable if it produces a useful, concrete and tangible result. After *State Street Bank* was delivered, the US Patent Office was showered with patent claims for business methods and numerous such patents were granted.

## 4.2 The Commission's proposal for a Software Patent Directive

The paradox of numerous patents for computer-related inventions and software-implemented business methods being granted in Europe even though the EPC excludes computer programs and business methods as such from its scope was the main reason behind the Commission's desire to take patent policy away from the EPO as far as these two types of inventions are concerned. In February 2002 the Commission issued a proposal for a Directive on the patentability of computer-implemented inventions.<sup>242</sup>

In the Explanatory Memorandum accompanying the proposal for a Software Patent Directive the Commission explained why the Community should harmonise national patent laws as far as computer-implemented inventions are concerned.<sup>243</sup> The Commission acknowledged that national statutory provisions laying the conditions for granting patents for computer-implemented inventions are similar in all Member States, as all EU Member States are signatories to the EPC; however, it also believed that there is a serious divergence in how

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<sup>240</sup> *Re Beauregard* 53 F 3d 1583 (Fed Cir 1995).

<sup>241</sup> *State Street Bank & Trust v Signature Financial Group* 149 F 3d 1368 (1998)

<sup>242</sup> Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions COM(2002) 92 final [2002] OJ C151E/129 (Commission's Proposal for a Software Patent Directive). For an appraisal of the Commission's proposal see P Mole and D Booton 'The Action Freezes? The Draft Directive on the Patentability of Computer-implemented Inventions' [2002] IPQ 289; and AWS Williams 'European Commission: Proposed Directive for Patents for Software-related Inventions' (2004) 26 EIPR 368.

<sup>243</sup> See Explanatory Memorandum accompanying the Commission's Proposal for a Software Patent Directive 9-12.

national patent authorities and national courts apply these provisions. The Commission put forward three main reasons which dictated the need for harmonisation. First, harmonisation would eradicate any obstacles that divergent national patent policies pose to intra-Community trade. Secondly, in the Commission's view, British and EPO jurisprudence are not sufficiently aligned on the issue of patentability of computer-implemented business methods. As already mentioned above, the UK Patent Office and the UK Court of Appeal are very sceptical towards granting patents for business methods, even when applicants can demonstrate that a method has a technical contribution. On the other hand, German courts are overly generous: they grant patents to business methods even when no technical contribution has been proven.<sup>244</sup> Thirdly, patent law harmonisation would offer companies active in the IT industry legal certainty as to what type of products they can patent; and legal certainty would lead to more investment in innovation.<sup>245</sup> Small and medium sized companies in particular are often not aware of the conditions and means of obtaining patents—perusal of divergent EPO and national case law and expert drafting of patent claims require legal and financial resources that smaller companies often do not have. On the whole the new Directive would strengthen the European software industry and make it more competitive towards the USA and Japan, countries where software patents are widely granted. A further reason for proposing the Directive was stated in the recitals to the proposal: a Directive on the patentability of computer-related inventions would ensure that the Community conforms with article 27(1) of TRIPS, which requires that patents should be available to any invention and all fields of technology—therefore also to inventions using computer programs.<sup>246</sup>

The Commission's proposal codified EPO case law on computer-implemented inventions but at the same time curtailed it on certain issues: the Commission wanted to create legal certainty as to when such inventions are patentable, but did not wish to establish a legal regime overly permissive towards software patents. It becomes clear from the Explanatory Memorandum to the proposal that the Commission was not in favour of adopting USA-style legislation which would lead to an abundance of software patents. The Commission's choice to stay within the *status quo* defined by the case law of EPO was the option favoured in a study conducted on the behalf of

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<sup>244</sup> The Commission cites the examples of *Automatic Sales Controls* (Bundesgerichtshof) [1999] GRUR 1078 and XZB 15/98 (*Speech Analysis Apparatus*) (Bundesgerichtshof) [2000] GRUR 930. See Explanatory Memorandum 11.

<sup>245</sup> See also recital 8 of the Commission's Proposal for a Software Patent Directive.

<sup>246</sup> *ibid* recital 6.



the Commission on the economic impact of patentability of computer programs, which was delivered in 2000.<sup>247</sup>

The proposal envisaged that Member States would amend national laws so that computer-implemented inventions would be patentable if they met the requirements of Article 52(1) of the EPC: if they were new, susceptible of industrial application and involved an inventive step.<sup>248</sup> However, patentability would not be available to claims for computer programs alone—in this respect the *IBM* findings were dismissed and the exclusion of computer programs ‘as such’ of the EPC was respected. This was made clear in two articles. Article 2(a) defined a computer-implemented invention as ‘any invention which involves the use of a computer, computer network or other programmable apparatus and having one or more *prima facie* novel features which are realised wholly or partly by means of a computer program or computer programs’. And article 5 provided that patent claims must involve an apparatus. To give a concrete example, under the Commission’s proposal a word processing computer program would not be patentable, whereas a computer program built into a mobile phone would, provided that the rest of the requirements of the Directive would be met.

The imprint of *Pension Benefits* on the proposal was very clear. Recital 11 of the proposed Directive stated that computer-implemented inventions are *de facto* of technical character, whereas article 4(2) placed the onus on proving that the invention involves an inventive step: according to the same provision, the inventive step is present if the computer-implemented invention makes a technical contribution to the state of the art. Furthermore, the technical contribution of the invention should be assessed by examining the invention as a whole, including its technical and non-technical elements.<sup>249</sup> This means that an invention which makes a technical contribution will be patentable even if it encompasses subject matter which is excluded under Article 52(2) of the EPC, such as business methods. In other words, the Commission’s proposal did not follow the approach of *State Street Bank*: business methods part

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<sup>247</sup> R Hart P Holmes and J Reid ‘The Economic Impact of Patentability of Computer Programs’ (Report to the European Commission March 2000) [http://europa.eu.int/comm/internal\\_market/en/indprop/comp/studyintro.htm](http://europa.eu.int/comm/internal_market/en/indprop/comp/studyintro.htm) (accessed 2 December 2005).

<sup>248</sup> *ibid* art 4(1).

<sup>249</sup> *ibid* art 4(3).



of an invention which makes a technical contribution would be patentable, but business methods on their own would not, just as computer programs on their own would not.<sup>250</sup>

Article 6 of the proposed Directive obliged EU Member States to provide in their national laws for certain defences to patent infringement. More specifically, acts permitted under the Software Directive should be excluded from patent infringement. In essence, the user rights to make back-up copies of a program, conduct black box analysis, or decompile it for the purpose of creating interoperable software should be preserved when the program in question happens to be part of a patented computer-implemented invention. Most Member States provide in their national patent laws that acts done privately and for non-commercial purposes or acts done for experimental purposes do not amount to patent infringement.<sup>251</sup> However, such defences are not enough for ensuring that competitors are able to develop new products interoperable with a patented computer-implemented invention—in this respect, had the Commission's proposal been adopted, interoperability would have been better safeguarded than it is at present.

The Commission's proposal was well received by big software houses and the Business Software Alliance (BSA), who saw it as a step towards levelling the field with the USA and Japan. However, it was heavily criticised by the small software producers and the open source movement. The latter advocates making available to licensees the source code of a computer program, whether the program is licensed for a fee or free of charge. The source code may be distributed with the program or else should be available free of charge through a well-publicised means—for instance it may be downloaded via the internet. An open source licence allows modifications and derived works and must allow them to be distributed under the same terms as the licence of the original software.<sup>252</sup> Both the open source movement and small software houses maintained that allowing patents for software-implemented inventions would stifle innovation in the software market and have a negative effect on competition in this sector, as software producers typically do not 're-invent the wheel' but build on one another's software; by patenting a computer program, creating new programs interoperable or competing with this one program would become very difficult, notwithstanding the assurances of the proposed Directive that user rights under the Software Directive would remain intact. Small software producers in

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<sup>250</sup> Explanatory Memorandum to the Commission's Proposal for a Software Directive 14.

<sup>251</sup> *ibid* 9.

<sup>252</sup> See the homepage of the Open Source Initiative at <<http://www.opensource.org>> (accessed 26 November 2005).

particular claimed that the Directive would harm their business, as they lack the financial resources to check all lines of the source code of every program they develop to check whether it infringes any existing patents and pay any due patent licensing fees; moreover, their own investment in creating new software will not be rewarded by the proposed Directive, as they do not have the financial and legal resources to prepare applications for their own patent claims.

The lobbying of those opposed to the Commission's proposal had a dramatic result on the amendments introduced in September 2003 by the European Parliament after its first reading of the proposal.<sup>253</sup> The amendments effectively deconstructed it and, had they been included in the final text of the Directive, would have left patent applications for computer-implemented inventions with very slim chances of success. The amended proposal was strikingly ill-drafted: not only was it full of repetitions and contradictions, but it also disregarded the EPC and EPO case law on many counts.

The definition of 'invention' in article 2(b) of the amended proposal was one of its ill-drafted points: the article stated that the term 'invention' is synonym for 'technical contribution', and a technical contribution is present if it is of technical character, new, non-obvious and susceptible of industrial application. This clearly contradicts Article 52(1) of the EPC, which provides that an invention (and not a technical contribution!) may be patented if it is new, involves an inventive step and is susceptible of industrial application; the requirement of 'technical contribution' has been found in EPO case law to be part of the inventive step condition. Notwithstanding the definition of invention/technical contribution in article 2(b), article 4(1) of the amended proposal was fully aligned with Article 52(1) of the EPC and the case law-based requirement for technical contribution—in effect articles 2(b) and 4(1) of the amended proposal contradicted each other.

As to how applicants must prove that the claimed computer-implemented invention makes a technical contribution, article 4(4) of the amended proposal offered the following nebulous test: they must prove that 'it constitutes a new teaching on cause-effect relations in the use of

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<sup>253</sup> Position of the European Parliament adopted at first reading on 24 September 2003 with a view to the adoption of Directive 2003/.../EC of the European Parliament and of the Council on the patentability of computer-implemented inventions [2004] OJ C77 E/230. (European Parliament's Proposal for a Software Patent Directive). For a brief overview of the Parliament's amendments see A Batteson 'Draft Directive on the Patentability of Computer-implemented Inventions: The European

controllable forces of nature and has an industrial application in the strict sense of the expression, in terms of both method and result'. As far as business methods are concerned the amended proposal used different wording, but in effect it did not seem to take different stance from the Commission's proposal. The amended proposal stated that an invention involving a computer program which implements a business method is not deemed to have a technical contribution to the state of the art if it does not produce any technical effects beyond the normal interactions between a program and a computer.<sup>254</sup> However, the Commission's proposal was not at odds with this: it implied that a computer-implemented business method is technical if it involves an apparatus,<sup>255</sup> but it still required that a technical contribution is proven.

The amended proposal excluded from its scope computer-implemented innovations in the field of data processing.<sup>256</sup> It also provided that patents could not be used to prevent communication and exchange of data between different computer systems or networks.<sup>257</sup> Under this latter provision, existing patents in the field of mobile telecommunications networks and video data conversion would have become unenforceable.<sup>258</sup> Last but not least, the amended proposal provided two more patent infringement defences, additional to the ones provided in the Software Directive. According to these defences, the use of a computer program for purposes which do not belong to the scope of the patent does not constitute patent infringement; and, when a patent for a computer-implemented invention is granted, a well-documented reference implementation of the programs involved in the invention must be published as part of the patent description, without any restricting licensing terms.<sup>259</sup>

The proposed Directive was subject to the co-decision procedure of Article 251 of the EC Treaty, which meant that all three Community institutions—the Commission, the European Parliament and the Council of Ministers—had to agree on the text of the Directive before it would have been adopted. Agreement proved elusive. The European Parliament's amended

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Parliament's Amendments—have the Proposals been Wrecked?' (2004) 20 *Computer L & Security Rep* 12, 14-16.

<sup>254</sup> European Parliaments Proposal for a Software Patent Directive art 5.

<sup>255</sup> Commission's Proposal for a Software Patent Directive recital 11.

<sup>256</sup> European Parliament's Proposal for a Software Patent Directive art 3. Art 6 states (somewhat superfluously) that an computer-implemented invention which merely improves efficiency in the use of resources within a data processing system is not patentable.

<sup>257</sup> *ibid* art 5.

<sup>258</sup> Batteson (n 253) 14.

<sup>259</sup> European Parliament's Proposal for a Software Patent Directive arts 7(4) and (5).

proposal was passed on to the Council of Ministers, which in March 2005 made its own amendments and issued a Common Position on the proposed Directive.<sup>260</sup> The Council's amendments largely reverted the draft Directive back to its initial form as it was in the Commission's proposal. The proposal was subsequently sent back to the Parliament for a second reading. On 6 July 2005, during the second reading stage, the Parliament rejected the Council's Common Position. The Commission had always maintained that it would terminate the legislative procedure if it proved impossible for all three institutions to agree on a text along the lines of its initial proposal. This is exactly what happened: the Commission decided not to present a new proposal.

For the foreseeable future, patent policy for computer-implemented inventions rests solely with the EPO. Undoubtedly, if the Commission had succeeded in convincing the European Parliament (and the open source movement) of the benefits of its initial proposal and the Directive had been adopted, the European software industry would be bestowed with a higher degree of legal certainty as to when and under which circumstances computer programs could be patented. As things stand, EPO will probably continue to stretch the scope of the EPC and an increasing number of software-related inventions (even ones which comprise computer programs as such) will be granted patent protection; whereas national courts in the UK and Germany, the two EU Member States with the strongest software industries, will continue to deliver contradictory judgments.

The Commission's proposal would have created a legal regime which would have been less patent-friendly than the one currently in place under the auspices of EPO: computer programs as such would not be patentable and third parties would be able to rely on the Software Directive to make back up copies of and decompile software which is part of patented inventions. The Member States would still be bound by the EPC, but in the case of software-implemented inventions the Directive would have provided guidance as to how Article 52 of the EPC should be interpreted. It is safe to assume that, had the Directive been enacted, many more patents for computer-implemented inventions would have been granted, even though the new regime would be more restrictive than the current one: software developers would have a roadmap as to what can be patented, the ECJ would create its own body of case law interpreting the Directive, and

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<sup>260</sup> Common Position (EC) No 20/2005 adopted by the Council on 7 March 2005 with a view to adopting Directive 2005/.../EC of the European Parliament and of the Council of ... on the patentability of computer-implemented inventions [2005] OJ C144 E/9.



more applications would have been submitted to national patent authorities. More patented software might also lead to less innovation on the part of smaller software developers: notwithstanding the defences provided in the Software Directive (which would allow them to decompile only the parts of patented software necessary for creating new interoperable or competing products), small companies would be potentially prevented from copying the ideas behind popular and well-designed existing computer programs. However, the situation would be better than it is now: there would be heightened level of legal certainty and computer programs as such would not receive patents.

It should be noted here that, as soon as the proposal for Software Patent Directive was rejected by the Parliament, big software companies and industry associations called for the Commission to push forward the proposal for a Community Patent.<sup>261</sup> Responding to this, in January 2006 the Commission launched a public consultation on how the EU's future patent policy should be drawn.<sup>262</sup> Issues put forward in the consultation are the Community Patent, how the current patent system in Europe can be improved and what are the possible areas of harmonisation. It remains to be seen if when any Community patent legislation will be adopted and what effect any future legislation might have on patents for computer-implemented inventions.

## 5 THE EUROPEAN SOFTWARE INDUSTRY

### 5.1 Current state of the industry

The EU currently holds the leading position in the world in embedded software—ie software hidden in electronic devices such as mobile phones, cars and planes. This is attributed to the fact that the EU has a very strong presence globally in industrial sectors such as automotive, avionics, telecommunications and consumer electronics.<sup>263</sup> However, the situation regarding

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<sup>261</sup> BSA was amongst those calling for pushing forward the proposal. See <http://www.bsa.org/eupolicy/press/newsreleases/CII-Directive-Rejection.cfm> (accessed 21 June 2006).

<sup>262</sup> Questionnaire on the patent system in Europe, Brussels 09/01/06, [http://ec.europa.eu/internal\\_market/indprop/docs/patent/consult\\_en.pdf](http://ec.europa.eu/internal_market/indprop/docs/patent/consult_en.pdf) (accessed 21 June 2006).

<sup>263</sup> Report by the High-level Group on Embedded Systems *Building ARTEMIS* (Office for Official Publications of the European Communities, Luxembourg 2004) 12 <http://www.cordis.lu/ist/artemis/background.htm> (accessed 7 December 2005). ARTEMIS is a joint initiative between the European Commission and European industry players (including, among others,



non-embedded software is very different. In his report entitled 'The Demise of the European Software Industry', Hale estimated that in 2005 only 30 of the world's 300 most valuable software firms were based in Europe—the definition of 'most valuable' being companies with an annual revenue of over \$40 million (€33 million).<sup>264</sup> In stark contrast, the overwhelming majority of these 300 companies was based in the USA: the list is endless and includes names ranging from Microsoft and Oracle to Adobe and Autodesk. Germany's SAP and two UK-based companies, Sage and Misys, were the only three European businesses to be counted amongst the world's 20 most valuable software companies.<sup>265</sup> And only SAP and Misys have revenues of over \$1 billion (€0.8 billion). What is even more worrying is that the European software industry seems to be shrinking, as there is a growing tendency for European companies to be taken over by US ones.<sup>266</sup>

One might question whether Hale presents a comprehensive profile of the European software industry. Admittedly, he does not take into account statistical data relating to small and medium size (SME) software producers; such companies may not have an impressive annual turnover but nevertheless provide employment and contribute to the European economy. He also ignores open source software developers based in Europe: according to a 2006 study commissioned by DG Enterprise, 57 per cent of them live in the EU.<sup>267</sup> Two thirds of open source software written in the EU is produced by individuals rather than companies—programmers who hold day jobs in SMEs producing proprietary software often contribute to the open source community in their free time. However, one cannot question that Hale gives an accurate account of collective revenues generated by the biggest European software developers; and the level of these revenues is nowhere near that of their US counterparts.

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British Telecom, Airbus and Ericsson) which aims to consolidate the EU's current leading position in embedded technologies.

<sup>264</sup> All statistical data cited in this paragraph is taken from A Hale's 'The Demise of the European Software Industry' (paper presented at the UK Technology Innovation and Growth Forum 14-15 March 2005) 1 <[http://www.russreyn.com/post/publications/DEMISE\\_WHITEPAPER.pdf](http://www.russreyn.com/post/publications/DEMISE_WHITEPAPER.pdf)> (accessed 2 December 2005).

<sup>265</sup> Both Sage and SAP specialise in business management software, whereas Misys creates software for international banking and healthcare companies.

<sup>266</sup> Hale (n 264) 1.

<sup>267</sup> UNU-MERIT 'Study on the Economic impact of open source software on innovation and the competitiveness of the Information and Communication Technologies (ICT) sector in the EU' (20 November 2006) <<http://ec.europa.eu/enterprise/ict/policy/doc/2006-11-20-flossimpact.pdf>> (accessed 5 May 2007) 37. UNU-MERIT is a joint research and training centre set up by the United Nations University and Maastricht University.

Hale's report shows that, despite the Commission's predictions in its proposal for a software Directive, the industry has failed to flourish. The proposal had declared that a harmonised copyright protection regime for software would strengthen the European software industry and would '[...]allow the Community to keep pace with other industrialised countries'.<sup>268</sup> The Software Directive has benefited the industry to a certain extent. It introduced strong and harmonised software copyright protection which created legal certainty for software firms and encouraged innovation by safeguarding the producer's right to decompile computer programs offered by competitors; in turn, employment and productivity in the software sector have increased.<sup>269</sup> But the Directive has not been sufficient for creating a European software industry competitive on an international level.

The lacklustre state of the European software industry obviously means that the latter does not contribute to the EU's gross domestic product (GDP) and does not create employment opportunities to the level it should. However, a mediocre software sector also has wider ramifications for the growth of all industry sectors in the EU.

The production and employment of software, hardware and telecommunications has been identified by the Community as the key to achieving economic growth. ICT, which stands for 'information and telecommunication technology' and includes software, hardware and telecommunications plays a crucial role in the EU's Lisbon agenda: the latter is the economic reforms strategy agreed upon by the EU heads of state in March 2000, which aims to make the EU 'the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion' by 2010.<sup>270</sup> Lisbon stresses that the key to achieving higher productivity and economic growth is to foster the ICT sector and encourage European-based companies to use ICT—after all, ICT has been a major contributor to the growth of the US industry. To give a tangible example, a bookstore can increase its revenues if it uses software for its payroll system, trains its staff to use software for placing orders to wholesalers, and maintains a website advising potential consumers on the

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<sup>268</sup> Proposal for a Software Directive (n 23) para 1.3.

<sup>269</sup> This is acknowledged by the BSA. See — Copyright and Intellectual Property <<http://www.bsa.org/eupolicy/Copyright-and-Intellectual-Property.cfm>> (accessed 5 December 2005). Also see The Economist Intelligence Unit 'Reaping the Benefits of ICT: Europe's Productivity Challenge' (Report sponsored by Microsoft) (2004) 22 <[http://graphics.eiu.com/files/ad\\_pdfs/MICROSOFT\\_FINAL.pdf](http://graphics.eiu.com/files/ad_pdfs/MICROSOFT_FINAL.pdf)> (accessed 28 March 2006).

<sup>270</sup> Lisbon European Council, Conclusions of the Presidency, Bulletin EC 3-2000, 7, 8.

books it stocks and any special offers in place. The Lisbon agenda envisages that the Community must encourage software manufacturers to produce packages useful to the bookstore and offer incentives to the latter to acquire such packages.

The less-than-impressive performance of the European software industry has unquestionably contributed to the fact the Lisbon objectives currently seem out of reach. Statistical data shows that in 2003 the GDP per capita in the EU was well below those of the USA and Japan, and that the EU's average annual GDP growth was significantly lower than those of China, India, South Korea and the USA. Following a lukewarm Commission mid-term review in 2005 on the progress made towards the Lisbon targets,<sup>271</sup> the European Council relaunched the Lisbon agenda in 2005.<sup>272</sup> Two recent studies (one by *The Economist* and another commissioned during the Dutch Presidency of the EU in the second half of 2004) focusing on the interface between ICT and the shape of the European economy point at two major factors which halt industry growth in the EU and thus render the Lisbon targets unattainable. The first factor is that European businesses have not invested sufficiently in ICT tools; the second that the ICT industries themselves—including the software one—are not adequately competitive on an international level.<sup>273</sup> In other words, the EU has failed to take advantage of ICT, despite its promises in the Lisbon agenda to do so.

## 5.2 Reasons behind the industry's hindered growth

So why is the Community software industry not flourishing? Why has the Software Directive not been sufficient for creating a surge in software innovation? The reasons, which are analysed below, are twofold. First, it could be argued that Community legislation is actually so protective of computer programs that it hinders innovation. Secondly, a series of studies reviewing the condition of the European IT industry point the finger at the business climate in Europe: the way

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<sup>271</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of Regions 'eEurope 2005 Mid-term Review' Brussels 18.2.2004 COM(2004) 108 final.

<sup>272</sup> Conclusions of the Presidency, Brussels European Council (22 and 23 March 2005) 7619/1/05 REV 1, 2-14.

<sup>273</sup> See *The Economist Intelligence Unit* (n 269) 4-8; and PricewaterhouseCoopers 'Rethinking the European ICT Agenda: The ICT-breakthroughs for Reaching Lisbon Goals' (Report commissioned by the Dutch Ministry of Economic Affairs) (The Hague, August 2004) 19-22

of conducting business here as well as the lack of private and public investment towards research and start-ups are to blame for the deficient performance of the software industry. If a dynamic software industry presupposes innovation, entrepreneurship and availability of investment capital, Europe is well-equipped in innovation, given that it has an abundance of good programmers, but is short of the other two.

### ***Overly strong protection for computer programs***

Certain aspects of the protection for computer programs under EC legislation act as a break to innovation. The Software and Information Society Directives afford TPMs applied to computer programs overly strong legal protection; and computer programs can also benefit from the Database Directive, as certain of their components can sometimes be protected under the *sui generis* database right. The latter assertion is discussed at length in chapter 3 of the thesis, where it is demonstrated that certain software user interfaces or data found within computer programs can indeed claim protection under the Database Directive. The former assertion was discussed in section 3.7.1 of the present chapter.

The legal protection of TPMs applied to computer programs is so strong that the creation of interoperable products is harmed. The UK cases of *Sony v Owen* and *Sony v Ball*<sup>274</sup> have demonstrated that, whether a TPM is applied to protect the copyright vested in a program or to partition markets or to bundle hardware to software, the TPM is protected under article 7(1)(c) of the Software Directive. The consequence is that TPMs discourage the creation of interoperable or competing software and hardware. For instance, Sony's digital locks prevent other manufacturers from creating computer games which can operate on Sony's PlayStation consoles: if they market games which bypass Sony's digital lock, Sony can claim the Software Directive's anti-circumvention rules apply—even though by releasing these new games they do not actually infringe Sony's copyright. Similarly, hardware manufacturers cannot legally market consoles which are compatible with Sony's games because by bypassing Sony's digital locks again they breach the Software Directive.

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<[http://europa.eu.int/information\\_society/eeurope/i2010/docs/rethinking\\_the\\_european\\_ict\\_agenda.pdf](http://europa.eu.int/information_society/eeurope/i2010/docs/rethinking_the_european_ict_agenda.pdf)> (accessed 27 March 2006).

<sup>274</sup> *Sony v Owen*, *Sony v Ball* (n 144)



Given that the software components can also be protected under the Database Directive, it is also possible for copyright holders to claim that users are not allowed to decompile parts of the computer program which are protected by copyright as databases or are protected under the *sui generis* database right; this is possible as the Database Directive does not provide users with a decompilation defence. In fact, this is what happened in the UK case of *Mars v Teknowledge*, which is discussed in section 5.1 of chapter 3.<sup>275</sup> In that case the defendant reverse engineered and produced a new version of the claimant's software. In response, the claimant argued that during the process of decompilation Teknowledge copied a database contained within the software and therefore infringed Mars' database right. This case was a clear example of the Database Directive being used to obstruct innovation.

Another side effect of the Database Directive is that copyright holders can apply a TPM to a computer program which contains protected databases and claim that it is protected against circumvention by virtue of the Information Society Directive's anti-circumvention provisions, as the program contains components protected as databases.

A reasonable objection to the above analysis of how the overprotection of computer programs harms the European software industry could be that US protection of software is even stronger than it is in the EU, and yet the US software industry thrives. Indeed, as demonstrated in section 3.7.1 of this chapter, the DMCA protects TPMs applied to software more effectively than the Software Directive does, whereas (as will be discussed in section 5.1 of chapter 3) US courts have often found that software components can be protected as copyright databases. Additionally, software patents are readily available in the US. However, even though software manufacturers based there have to deal with this overly protective system, they also benefit from the nourishing business climate and funding opportunities present in the US. All factors discussed below—existence of a homogenous market, achieving economies of scale, specialising in a particular type of product, enjoying a positive entrepreneurial climate, availability of experienced CEOs and private or public funding—which lead to a thriving software industry are present in the US. In stark contrast, they are not present in the EU; European software producers who are new in the market are hindered by an overly protective legal regime but do not enjoy the beneficial factors of their US counterparts.

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<sup>275</sup> *Mars v Teknowledge* [2000] FSR 138 (Ch).



It should be acknowledged here that the view that the excessively strong legal protection of software in the EU contributes to the industry's mediocre performance would be put to the test if the Commission were to initiate a consultation amongst software producers in Europe. The 2004 Copyright Review Paper did invite contributions from industry players, but its objective was to assess the need for aligning existing EC copyright rules, not to question whether the existing copyright framework stifles innovation in the software sector. Should the Commission release a discussion paper on how the existing regime and in particular the rules on TPMs affect a developer's ability to decompile programs and develop his or her own, big producers are bound to defend the existing legislation; however, it would be interesting to see the reactions of SME producers, who might welcome less protective TPM laws or might like to see the Database Directive amended so that it does not protect software components.

It should also be noted that this thesis does not suggest a unilateral lowering of software copyright protection levels in the EU. For as long as countries such as the USA and Japan continue to have in place strong copyright laws, the EU is effectively obliged to keep pace with them. Unilateral copyright law relaxation would drive investors and software producers away from the EU and towards more protective regimes. However, if software copyright laws were to become less vigorous on an international scale—for instance via an amendment of the WCT—Europe's smaller software producers would undoubtedly benefit.

### ***Internal market fragmentation***

Even though the Community's internal market has been integrated to a certain extent and most barriers to trade have been taken down, it is by no means homogenous when it comes to software products. In the USA a computer program has the whole of the country as its geographical market; in the EU a program's geographical market is restricted due to different national languages, business customs and practices, and laws—such as tax and employment ones—which have not been fully harmonised. As a result it is difficult for European software firms to achieve economies of scale and grow in size.

An off-the-shelf payroll software package is a good example for illustrating market fragmentation within the EU. In a large market like that of the USA, such a package can be licensed to companies all over the country and its producer can have big returns from its production. A similar package produced in Poland will only be bought by businesses in that country: the software would incorporate elements of Polish tax and employment law and would

be useless anywhere else. Barriers such as these are more difficult to overcome than language ones—it is relatively easy and cheap to create different language versions of the same computer program.

***Diversification rather than specialisation of software companies***

As the internal market is not big enough to facilitate big returns from packaged software, European software companies are forced to diversify into different software products and, often, software-related services.<sup>276</sup>

Most European software companies offer customised software (ie tailored software created ad hoc for every customer) and at the same time services such as email systems, consulting, outsourcing and systems integration (the latter is the construction of a software system for a particular customer from a variety of diverse components such as hardware, software and networking expertise). On the other hand, US companies tend to specialise in mass-marketed packaged software which is sold nation-wide, can produce big revenues and can therefore lead to decreased unit production costs. In other words, US companies can achieve economies of scale quite easily.

Diversified European software companies have great difficulties achieving economies of scale as they do not produce large volumes of the same product. Instead, they have the possibility of achieving economies of scope: a company which has made, over the years, a significant investment in structured software development methodologies and has developed large software libraries will use these resources when customising software for particular clients and therefore will decrease the production cost for the end product. The same is true when it comes to offering services such as systems integration.<sup>277</sup> However, economies of scope are harder to achieve than economies of scale. In other words, European software producers have smaller growth potential than their US counterparts.

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<sup>276</sup> S Torrisi 'Firm Specialisation and Growth. A Study of the European Software Industry' (1996) 35 LIUC Papers in Economics 3.

<sup>277</sup> Systems integration involves building a customised computer system from a variety of diverse components such as hardware, software and networking services. Many big IT companies (eg Accenture, HP, Compaq and IBM) offer this service.

Hale's report on the European software industry points at further problems caused by creating many different custom versions of a particular product for different clients: the company's management has to deal with many different client solutions (rather than staying focused on improving the core version of the product and persuading clients to pay for upgrades), whereas offering technical support for multiple versions is costly and unsustainable.<sup>278</sup> Hale also stresses that successful companies typically aim to achieve at least 60 per cent of their total revenue from software licences rather than from services.<sup>279</sup>

The European trend for diversification rather than specialisation has also been one of the reasons why Europe has not produced any platform leaders: a platform (such as Microsoft Windows) can become dominant, achieve network externalities and become the standard for which third companies write software only when the platform is mass-produced and used by a large number of clients.<sup>280</sup> Companies which offer multiple versions of a product rather than focus on marketing one core version do not have the chance of doing this.

On the whole, diversification is one of the main reasons behind the growth problem of the European software industry. SAP is one of the few European companies which specialise in packaged rather than customised software and has therefore become one of the most successful industry players globally.

### ***Entrepreneurial climate***

Studies on the current state of the European software industry agree that the business climate in Europe is not sufficiently positive towards start-ups. Numerous reasons contribute to this. Many Member States have in place labour laws which are not flexible enough to allow company restructuring (and consequently staff dismissal) with ease.<sup>281</sup> Complexity of tax laws and high penalties for bankruptcy are also often reasons deterring individuals from setting up companies.<sup>282</sup> Last but not least, Europe faces a serious deficit of experienced CEOs: most

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<sup>278</sup> Hale (n 264) 4.

<sup>279</sup> *ibid* 4-5.

<sup>280</sup> Torrisi (n 276) 26-27.

<sup>281</sup> PricewaterhouseCoopers (n 273) 50.

<sup>282</sup> The Economist Intelligence Unit (n 269) 24.

European software companies have first-time CEOs.<sup>283</sup> Even though having an experienced management team at the steering wheel of a company does not guarantee success, more often than not repeat entrepreneurs will bring with them useful business knowledge and, importantly, will therefore have better chances of attracting venture capitalists (VCs). Unfortunately, European first-time CEOs who set up successful companies tend to sell them and enjoy their newly-found financial security, without any ambition to set up a new and even more successful new venture: they do not want to undertake the effort, strain and financial risk. In stark contrast, North American entrepreneurs typically want to repeat the experience and set up companies which are even more successful.<sup>284</sup>

#### ***Availability of public and private funding***

Another trend affecting the growth of the European ICT industries in general and the software sector in particular is the lack of private equity investment towards start-ups and small businesses: without early-stage funding, new companies have only a small chance of surviving. This is particularly worrying in view of the fact that 95 per cent of firms in the EU are SMEs.<sup>285</sup> European VCs, unlike their US counterparts, prefer investing in companies which are already established—a trend which perhaps reflects their lack of confidence in first-time CEOs who typically run new companies. The lack of private funding for start-ups crucially means that university and research institute spin-offs—which often attempt to capitalise on highly innovative technologies that could result in successful software products—have limited chances of survival. Notable exceptions to this trend are the UK, Ireland and the Netherlands, countries where the tax and legal systems encourage private equity funding.<sup>286</sup> According to the European Venture Capital Association, the situation regarding private investment in ventures is changing: the Association claims that the amount of equity capital available for early-stage ventures is currently on the increase.<sup>287</sup>

Even if private early-stage funding for European start-ups is on the increase, it seems unlikely that they will ever enjoy the same public funding opportunities that US companies have been

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<sup>283</sup> According to Hale, in 2005 all top 50 software companies based in Europe had a first-time CEO. Hale (n 264) 3.

<sup>284</sup> *ibid.*

<sup>285</sup> The Economist Intelligence Unit (n 269) 5.

<sup>286</sup> *ibid* 19-20.

<sup>287</sup> *ibid* 20.



enjoying for many decades now. In the 1950s the US government set up two (still running) projects aimed at helping small businesses. The Small Business Administration is a governmental agency which offers direct loans and guarantees for bank loans; and the Small Business Investment Company Program funds private investment firms which in turn invest in small companies. Software conglomerates such as Intel, Microsoft, Compaq and HP have all benefited by these two projects.<sup>288</sup>

The dearth of funding for start-ups and small companies is something that, unlike the entrepreneurial climate which is partially a cultural issue, the EU can change. And the best way to do this is follow the example of the US policy described above. If VCs are reluctant to fund new and small businesses in Europe, the EU and the governments of its Member States must provide funding directly to such companies and also offer incentives to VCs to invest in them.

The funding deficiencies present in the software sector are not confined to VC behavioural patterns. There is also a lack of private and public funding towards R&D. Even though big ICT companies typically conduct their research in-house, it is quite common for companies to outsource R&D to universities and research institutes. Additionally, independent research conducted in such institutions can often lead to major breakthroughs with good commercial exploitation potential. Again there is room for improving R&D activities in Europe through governmental intervention. First, the Community and its Member States can encourage links between businesses and universities; SMEs in particular need incentives for commissioning R&D to universities, as currently such activities are prohibitively costly. Secondly, governments could alter their methods of funding university R&D projects: funds should be directed to applied rather than purely theoretical research and researchers should be better remunerated—good ones are often lured away by more generous research grants available in the US. Increased and more efficient funding for research is also advocated by EICTA, a Brussels-based association of electronics and telecommunications companies which represents all well-known software producers active in Europe.<sup>289</sup> Once more, Ireland is one of the few Community

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<sup>288</sup> —“Two Minute Warning” for the European Software Industry’ The Chilli  
<[http://www.thechilli.com/articles/misc/053\\_twoMin.asp](http://www.thechilli.com/articles/misc/053_twoMin.asp)> 2 (accessed 2 April 2006).

<sup>289</sup> EICTA stands for European Information, Communications and Consumer Electronics Technology Industry Associations. Their views on how the Community’s R&D policy can be improved can be found at <<http://www.eicta.org/issue.asp?level2=40&level1=3&level0=1&year=2005&docid=412>> (accessed 20 January 2006).



Member States which have a good record in fostering R&D and liaising universities and industry.<sup>290</sup>

## 6 CONCLUSION

The Community's choice to designate copyright rather than patents as the means of legal protection for computer programs has been a positive one regarding innovation in the European software industry, particularly as far as smaller players are concerned. Software developers are free to borrow ideas from one another—so long as they do not borrow object and source code—mostly uninhibited by patent monopolies and without having to pay patent licence fees. The overprotection of computer programs by both copyright and patent law which occurs in the USA has been avoided in the EU. However, the Community's legal regime for software protection is far from perfect; below follows a summary of the main points which have arisen from the legal regime's analysis in this chapter.

Even though theoretically computer programs cannot be patented under the EPC, in practice some computer programs have been patented in Europe as part of a computer-implemented invention. This is unavoidable, given the wording of Article 52 EPC and the fact that these days software is embedded in most new innovative products and services. Nevertheless, it has been demonstrated in section 5 of this chapter that European patent policy for computer-implemented inventions is somewhat chaotic. There is a clear confusion amongst the EPC and national patent offices in Europe as to what is patentable and what is not. Often the very wording and intent of the EPC is being disregarded—the most striking example of this were the *IBM/Computer programs* cases,<sup>291</sup> where the EPO's Board of Appeals held that computer programs as such can be patented. Furthermore, the fact that a patent which is valid in more than one country can be challenged in all respective national courts can lead to contradictory outcomes and burden patent holders with copious legal costs. It is clear that the Community must intervene and take patent policy for computer-implemented inventions away from the EPC and EPO.

It is regrettable that the proposal for Software Patent Directive was rejected; even though consumers and small software producers strongly believed it would lead to a software industry

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<sup>290</sup> The Economist Intelligence Unit (n 269) 20-21.

saturated by patents and bereft of innovation, in reality it would have created more legal certainty and put a break on decisions such as *IBM/Computer programs*, as it would have made it impossible to obtain patents for computer programs alone. One can only hope that the proposal for a Community Patent Regulation will be eventually adopted and will somewhat smooth out the situation regarding patenting of computer-implemented inventions. The Regulation would not only simplify the process of obtaining patents which are valid throughout the EU, but would also allow the ECJ (by giving it jurisdiction to try patent challenges) to generate a consistent body of case law in the area and restrain the patenting of computer programs.

Software patent policy aside, this chapter has focused on providing a critical assessment of the EU's copyright protection for computer programs. Unlike the US, where software copyright is a collage of USC provisions and case law, in the EU the Software Directive lays out all the rights and obligations of both copyright holders and lawful users; the Information Society Directive applies directly to computer programs only as far as the protection of RMI is concerned. Having said that, this chapter has demonstrated that the Software Directive has serious shortcomings. First, it does not delineate the scope of software copyright in an entirely comprehensive way. And secondly, it does not strike the right balance between the copyright owner's interests and the lawful user's interest to use the software according to its intended purpose and be able to reverse engineer it in order to create interoperable or competing products. Directly related to this latter issue are the obstacles that the Software Directive's anti-circumvention provision poses to competition.

Regarding the Directive's sketching of the scope of software copyright, it was demonstrated in section 3.8 of the chapter that the Directive's failure to clarify whether user interfaces and non-literal elements (such as the computer program's structure or algorithms within the program) are protected under the Directive's scope. The declaration in article 1(2) that copyright protects 'the expression in any form of a computer program' but not the ideas and principles that underlie any of its elements is not sufficiently clear and has led to divergent judgments in various national courts. There is a consensus amongst courts that graphical user interfaces are protected by copyright not under the Software Directive but independently as audiovisual works; but there is no consensus on non-graphical user interfaces (such as command lines) and non-literal elements.

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<sup>291</sup> *IBM/Computer programs* (T935/97) (n 226), *IBM/Computer programs* (T1173/97) (n 227).

This is problematic because most software copyright infringement cases concern non-literal copying rather than literal copying of the program's source or object code. The nebulous phrasing of article 1(2) will continue to cause courts to deliver contradictory decisions. The EU's national courts do not tend to look at case law from other Member States and therefore uniformly used techniques such as the ones developed by US courts—namely the *Altai* test and the compilation doctrine—do not exist. Given that the Copyright Review Paper does not recommend that article 1(2) of the Software Directive should be amended, the only possibility of clarifying the scope of this provision is for the ECJ to do so in the context of the Article 234 EC Treaty preliminary ruling procedure.

The second shortcoming of the Software Directive identified in this chapter is its inability to balance successfully author and user rights. This problem lies in the Directive's article 7(1)(c) on the protection of TPMs applied to computer programs. Admittedly, computer program users would be worse off if the anti-circumvention provisions in the Information Society Directive had displaced article 7(1)(c) of the Software Directive and applied to software as well as other types of copyright works. The Software Directive is less protective of TPMs than the Information Society Directive is—and also less protective than US copyright law. Lawful users of a computer program protected under the Software Directive are free to circumvent TPMs applied to it; if a TPM prevents them from backing-up or reverse engineering it (ie from exercising their inalienable user rights) they can circumvent the TPM and proceed to back-up and reverse engineer the program. However, technological progress has allowed TPMs to become increasingly effective and increasingly difficult to circumvent. It has already been demonstrated in section 3.7.1 that article 7(1)(c) of the Software Directive is not phrased appropriately for ensuring that user rights are not overly restricted by TPMs: users can try to circumvent but may not succeed to do so, especially because they will have to come up themselves with the means to circumvent, given that the Software Directive forbids the circulation of circumvention means. The *Sony* cases have demonstrated that that legal provisions forbidding circulation and commercial exploitation of circumvention devices are applied strictly: it will be recalled that the defendants in these cases had developed and distributed the mod chip that would allow lawful users to play their Sony games on a PS2 console of their choice (rather than a console purchased in the geographical zone dictated by Sony's marketing policy); all courts but for Australia's High Court found that the defendants had breached the respective country's anti-circumvention

provisions. As already discussed in section 3.7.1, if the Australian case of *Sony v Stevens*<sup>292</sup> had been decided today the court would have also found for Sony because of amendments which have been introduced to the Australian Copyright Act since the facts of that case took place.

In the analysis of the *Sony* cases in section 3.7.1 of the chapter I also discussed how the Software Directive's anti-circumvention provision can be used not only to restrict user rights in ways not envisaged in the Software Directive, but also to partition markets and bundle hardware to software.

An additional concern for advocates for user rights and interoperability is that software developers also have the possibility of relying on the Information Society Directive's anti-circumvention provisions so as to protect their computer programs—provisions which are much stricter than the Software Directive's article 7(1)(c). This happens when software is bundled in the same medium with another type of copyright work. An example of such a medium is an on-line encyclopaedia which encompasses a database as well as software which allows users to retrieve information from the encyclopaedia. In such a case, a TPM protecting the encyclopaedia will be safeguarded against circumvention under both the Software Directive (because of its software component) and the Information Society Directive (because its database is protected against TPM circumvention under that Directive). This means that users will not be allowed to try and circumvent themselves the TPM to exercise all their rights in connection to the software encompassed in the encyclopaedia.

Even though it is not possible to prevent software copyright owners from employing the method described above, it is possible to amend article 7(1)(c) so that it protects TPMs from circumvention without eroding user rights and obstructing competition. It is imperative that the balance between author and user rights achieved with the introduction of the Software Directive in 1991, when TPMs were not as effective, is not disturbed today because of the technological progress allowing software companies to employ TPMs which not only protect the author's copyright but also hinder the user's rights, including the right to reverse engineer the computer program. Article 6 was the result of fierce confrontations and negotiations prior to the Directive's adoption and the *status quo* it introduced has to be maintained: lawful users must be allowed to decompile a program in order to create a new interoperable or competing one. It is

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<sup>292</sup> *Sony v Stevens* (n 144).

submitted here that there are two possible ways of amending the Software Directive's anti-circumvention provision so that TPMs do not jeopardise user rights.

The first solution would be to rewrite the provision so that it protects all types of access TPMs (ie those preventing unlicensed parties to use of the program) but protects copy TPMs (ie those enforcing software licences and preventing users from performing certain actions) only to the extent that they do not obstruct backing up the computer program and or reverse engineering it.

The second solution would be more drastic. It would entail amending article 7(1)(c) so that it protects only TPMs which protect the copyright owner's rights as these are envisaged in articles 4 and 5 of the Software Directive. If the TPM has any other purposes or effects it will fall outside the scope of article 7(1)(c). Such purposes or effects would include obstruction of reverse engineering or backing up; rendering the computer program incompatible with certain types of hardware, except if operating it on these types of software would impede the program's performance; and facilitating market partitioning. If the Software Directive were to be amended in this way, problems such as the ones posed to computer game users in the *Sony* cases would have been avoided because Sony's digital locks would not be protected against circumvention.

If the Community were to follow either of the above scenarios, it would not have breached its obligation under the WCT to provide 'adequate legal protection and effective legal remedies against the circumvention' of TPMs.<sup>293</sup> However, it is certain that the proposition of any such amendment would face fierce opposition not only from software developers but also many other industry players who market products that have software embedded in them—for instance computer game manufacturers.

In any case, the Commission does not have any plans to revise the Software Directive's anti-circumvention provision. The Copyright Review Paper does not recommend any amendments to article 7(1)(c); as was discussed throughout section 3 of the chapter, the only changes that the Copyright Review Paper puts forward for the Software Directive are that the copyright holder's distribution right should be restated so that it becomes clear it includes the right to communicate the work to the public, and that article 4(1) should be amended so that temporary reproductions which take place during caching a computer program should not infringe the copyright holder's

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<sup>293</sup> WCT Art 11.



rights—this latter suggestion aims to align the Software Directive with article 5(1) of the Information Society Directive. The Copyright Review Paper concludes that all other inconsistencies between the Directives reviewed do not damage the balance between copyright holders and users or consumers, and do not hamper the operation of the internal market. Particularly as far as its anti-circumvention rules are concerned, it is to be expected that the Community is unlikely to deviate from the current worldwide trend for strong anti-circumvention laws.

Regrettably, the Copyright Review Paper also fails to suggest any amendments to article 1(2) of the Software Directive: the current uncertainty as to the copyright protection of user interfaces and non-literal software elements will continue to exist, and national courts around the EU will continue to reach conflicting conclusions.

This chapter has fulfilled its purpose to delineate software copyright in the EU—to the extent this is possible given the Directive's nebulous treatment of user interfaces and non-literal software elements. It has also provided a critical analysis of software copyright and pointed out its loopholes and weaknesses, while discussing where appropriate whether the Commission is contemplating in its Copyright Review Paper to introduce any amendments to the Software Directive. The remaining objective of the chapter was to assess whether the Software Directive has succeeded in turning the European software industry into a success story.

The answer to the latter question was provided in section 5 of the chapter: the Directive has not delivered a flourishing European software industry. It has given software producers the legal certainty that their output is protected by the same copyright rules throughout the EU and that the author's rights are protected throughout the Berne Union; it also allowed software producers to lawfully decompile computer programs created by US companies in order to produce competing or interoperable programs; concerns that US companies would bring legal actions against such acts of reverse engineering turned out to be unjustified, probably because in the years following the Directive's adoption US courts have accepted that under certain conditions decompilation is part of fair use. However, the Software Directive has not pushed the European industry to compete on a par with its US counterpart. In fact one of the Directive's articles, its anti-circumvention provision, has had a negative effect.

The factors holding European software producers back were analysed in section 5. It will be recalled that the first factor examined was the overly strong protection available to computer

programs in the EU, whereas the rest related to the business climate in Europe. The latter factors are difficult to eliminate, especially those amongst them which relate to cultural characteristics of people and markets in Europe. The fragmentation of the geographical market for computer programs in the EU is likely to continue for many years to come; the on-going harmonisation of national laws in the EU will make the movement of some computer programs (for instance those which calculate taxes or wages) easier, but languages and business customs will continue to vary across the common market. Given that these obstacles will continue to exist, it is unlikely that European software houses will start specialising in specific mass-produced software products rather than keep their current practice of diversifying into offering customised software while at the same time also providing software-related services. Therefore, achieving economies of scale or producing computer programs which end up being a platform leaders will continue to remain unattainable dreams for European software producers.

The entrepreneurial climate in Europe is also difficult to change: successful first-time CEOs do not proceed to set up new companies for cultural reasons, whereas Europeans tend to severely oppose governmental initiatives to make labour laws flexible enough to allow company restructuring and lay-offs with ease. The last of the factors reviewed in section 5, that of lack of public and private funding in the software sector, can be eliminated if the EU and national governments adopt the appropriate strategies. These could include governmental or EU funding for R&D projects run by university research centres or fostering links between VCs and such projects; they could also include strategies for encouraging VCs to invest in start-ups on SMEs in the software sector.

The remaining factor discussed in section 5 which contributes to the European software industry's demise is the excessively strong legal protection of computer programs in the EU. The Software Directive is part of this problem, due to its anti-circumvention provision. In this respect, the Software Directive has hindered rather than fostered the industry. The other part of the problem is the Database Directive, which affords protection to certain software components.

The two Directives together can at times obstruct innovation, as demonstrated in section 5: they pose serious obstacles to the manufacturing of new software and hardware. Furthermore, the *Sony* cases showed that article 7(1)(c) can be used towards market fragmentation. As we have seen, the Commission does not plan to rectify this problem. In fact, the Copyright Review Paper does not even acknowledge it.

Given that no amendment of the Software and Database Directives is forthcoming, the only solution to the problem is to apply vigorously those Community rules which can moderate the exercise of copyright: Articles 81 and 82 of the EC Treaty. Copyright licensing is the way software producers commercially exploit their products; it is the very way in which they exercise their copyright. It is therefore vital that the terms under which they license their products or even their refusal to license them at all are regulated vigorously by competition rules. Arbitrary refusal to license may be the most obvious licensing behaviour to frustrate competition within the internal market as it can directly harm innovation; but other licensing terms such as those dictating customer and market allocation, field of use restrictions and error correction prohibitions can also prevent competitors from having demand for their software products and services. It has already been demonstrated in this chapter that the bulk of European software companies are SMEs. They are the very companies which need to be protected from predatory licensing practices exhibited by the big players in the industry.

This thesis argues that the Community's competition rules have to compensate for the interoperability and innovation problems posed by the Community's copyright laws. Correct application of competition rules can lead to more products and therefore bigger customer choice, and ultimately lead to a healthier software industry. The Software Directive's article 6 is no longer sufficient for ensuring that competitors can freely decompile computer programs and proceed to create new interoperable ones—powerful and overprotected TPMs now stand in their way. Therefore, the application of Articles 81 and 82 EC Treaty to software copyright licences will be discussed at length in chapters 3 and 4 of this thesis.

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# 3 COMPUTER PROGRAMS AND THE DATABASE DIRECTIVE

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## 1 INTRODUCTION

Even though the Software Directive is the legislative instrument designated to afford legal protection to computer programs within the common market, the 1996 Directive on the legal protection of databases has, perhaps unintentionally, provided an alternative means of protection for computer programs.<sup>1</sup> The Database Directive explicitly excludes from its scope software used in creating or operating electronic databases,<sup>2</sup> but this provision does not bar national courts from protecting a computer program or elements of it as a database. In other words, the Database Directive has not been drafted in such a way that it successfully excludes all computer programs from its scope: it is theoretically possible to perceive a computer program as a database consisting of modules and interfaces, whereas case law has found that parts of a computer program may constitute a database.<sup>3</sup> The purpose of this chapter is to give an overview of the Database Directive and also demonstrate the effect it has on the legal protection of computer programs.

Prior to the adoption of the Database Directive, databases were already protected in varying degrees by national copyright laws in the Community's Member States, in accordance with article 2(5) of the Berne Convention.<sup>4</sup> However, article 2(5) of the Berne Convention affords copyright protection only to the selection and arrangement—and not the content—of a

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<sup>1</sup> Directive 96/9/EC of 11 March 1996 on the legal protection of databases [1996] OJ L77/3 (Database Directive).

<sup>2</sup> *ibid* art 1(3). Software used in the process of creating or managing a database is protected by copyright if it meets the requirements of art 1 of Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs [1991] OJ L122/42 (Software Directive).

<sup>3</sup> *Mars v Teknowledge* [2000] FSR 138 (Ch), *Data Access Corporation v Powerflex Services Pty Ltd* [1999] HCA 49. The cases are discussed in section 5.1 of this chapter.

<sup>4</sup> Berne Convention for the Protection of Literary and Artistic Works (9 September 1886, latest version Paris, 24 July 1971) (Berne Convention).

database consisting of works which are themselves protected by copyright; the content of the database is not protected by the copyright vested in the database. The Community wanted to harmonise the level of copyright protection for databases across the common market and also ensure that not only the structure but also the content of a database is protected, regardless of whether content elements are themselves protected by copyright. This harmonised system of protection would particularly benefit owners of electronic databases, which can be very costly and laborious to produce but whose content free riders can easily copy without authorisation, rearrange and distribute, all without infringing the copyright protecting the structure of the original database.<sup>5</sup>

On the whole, the Community wanted to ensure that, by creating a highly protective legal environment for databases, the European database sector would be encouraged to invest in creating databases—predominantly electronic rather than traditional hard-copy ones—capable of competing on an international level.<sup>6</sup>

Even though the process which led to the adoption of the Database Directive had already started in 1988 with the publication of the Green Paper on Copyright and the Challenges of Technology,<sup>7</sup> the 1991 US Supreme Court's judgment in *Feist* had a decisive effect on the formulation of the Directive.<sup>8</sup> *Feist* was a telephone operator which published a white pages telephone directory with the names, addresses and telephone numbers of all its subscribers. The US Supreme Court found that the directory did not qualify for copyright protection. Rejecting the long-established 'sweat of the brow' criterion employed by US courts, it held that a compilation is eligible for copyright protection only if it is original in the sense that it has been independently created by its author and it displays a minimum degree of creativity. *Feist's* white page directory did not meet this creativity requirement: both the selection of information included in the compilation (details of all *Feist's* subscribers) and the information's arrangement (in alphabetical order) were obvious and did not demonstrate any

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<sup>5</sup> This risk is cited in recital 38 to the Database Directive as one of the reasons which lead to the creation of the *sui generis* database right.

<sup>6</sup> See recitals 7, 11 and 12 of the Database Directive.

<sup>7</sup> COM(88) 172 Final. The adoption of a Database Directive was proposed in chapter 6 of the Green Paper.

<sup>8</sup> *Feist Publications Inc v Rural Telephone Service Co Inc* 499 US 340, 111 S Ct 1282 (1991).



creativity. The originality standard crystallised in *Feist* was followed in subsequent decisions by American courts and remains applicable law in the US.<sup>9</sup>

The repercussions of *Feist* were felt in the EU. The Community's legislature feared that, if courts in EU Member States were to start applying the high originality standard applied in *Feist*, the EU's database industry would be in peril: companies which had invested a lot of effort and capital in building databases lacking in originality would find that their products were not protected by law and could be freely copied.<sup>10</sup> The *Feist* judgment along with the desire to protect the European database industry resulted in the adoption of a Database Directive which introduced a two-tier scheme of protection. Databases which exhibit originality in the selection or arrangement of their contents are protected by copyright; and databases—whether protected by copyright or not—which are the result of substantial investment in obtaining, verifying and presenting their contents are protected by a new *sui generis* database right which prevents the extraction and re-utilisation of their contents.

The Database Directive has created a very protective legal regime in the Community. Unlike the Software Directive, which set the originality threshold somewhere between the low British standard and the high continental one, the Database Directive uses both standards:<sup>11</sup> if a database is the author's intellectual creation it is protected by copyright, and if substantial labour or capital was expended during its creation it is protected by the *sui generis* right. Some databases qualify both for copyright and *sui generis* protection, in which case third parties are not allowed to copy the database's structure or extract its content. And makers of most databases, even those not original enough, are able to prevent extraction and re-utilisation of content by invoking their *sui generis* rights.

It is worth noting that *Feist* also prompted WIPO to attempt establishing an international standard for the legal protection of databases. The 1996 WIPO diplomatic conference which

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<sup>9</sup> For a discussion of the Court's judgment in *Feist* and its effect on subsequent case law in the US see G Wei 'Telephone Directories and Databases: The Policy at the Helm of Copyright Law and a Tale of Two Cities' [2004] IPQ 316, 337-346.

<sup>10</sup> This fear was echoed in the Explanatory Memorandum accompanying the Proposal for a database Directive, where white pages directories are mentioned as an example of databases which do not attract copyright protection but which should be protected by the proposed *sui generis* database right, as time, labour and organisational skills were expended for the directory to be compiled. Explanatory Memorandum to the Proposal for a Council Directive on the legal protection of databases COM(92)24 final – SYN (13 May 1992) paras 3.2.4 - 3.2.8.

<sup>11</sup> For a discussion of the different levels of originality present in British and continental copyright regimes prior to the introduction of the Software and Database Directives see chapter 2, section 3.2.1.

took place in Geneva—the same conference which adopted the Treaties on Copyright and on Performances and Phonograms<sup>12</sup>—considered adopting a database treaty which would protect both the structure and content of databases. However, the relative proposal was met with substantial opposition, particularly from developing countries, and was eventually not adopted.<sup>13</sup> The WCT did go a step further than Berne Convention as far as the copyright protection of databases is concerned, but does not protect content. Article 4 of the Copyright Treaty protects compilations not only of copyright works but also of data or any other material. The originality criterion is set quite high: only databases which constitute intellectual creations by reason of the arrangement or selection of their contents qualify for copyright.

Following the 1996 diplomatic conference, numerous drafts proposing a *sui generis* database right prohibiting unauthorised extraction of content were drafted in the US but none of them was ever enacted. The last one of these, the Database and Collections of Information Misappropriation Act, was introduced in 2003 and is still being considered.<sup>14</sup>

As far as the *sui generis* database right created by the Database Directive is concerned, its scope has been discussed and considerably clarified in four ECJ judgments concerning the legal protection of sporting databases, which were delivered in November 2004. The judgments are preliminary rulings on questions referred by courts in Finland, the UK, Sweden and Greece in the context of the following cases: *Fixtures Marketing v Veikkaus*, *The British Horseracing Board v William Hill*, *Fixtures Marketing v Svenska Spel* and *Fixtures Marketing v Organismos Prognostikon Agonon Podosfairou (OPAP)*.<sup>15</sup>

The British Horseracing Board (BHB) and Fixtures Marketing claimed that all four defendants infringed their rights in their respective databases. Fixtures Marketing is

<sup>12</sup> WIPO Copyright Treaty (Geneva 20 December 1996) (WCT) and WIPO Performances and Phonograms Treaty (Geneva 20 December 1996).

<sup>13</sup> MJ Davison *The Legal Protection of Databases* (Cambridge University Press Cambridge 2003) 226.

<sup>14</sup> Bills on the legal protection of databases were introduced in 1996, 1997 and 1999. See J Lipton 'Databases as Intellectual Property: New Legal Approaches' (2003) 25 EIPR 139. The text of the Database and Collections of Information Misappropriation Act is available at the website of the US Copyright Office at <<http://www.copyright.gov/legislation/>> (accessed 12 April 2005).

<sup>15</sup> Cases C-46/02 *Fixtures Marketing Ltd v Oy Veikkaus Ab* [2004] ECR I-10365, C-203/02 *The British Horseracing Board Ltd and Others v William Hill Organisation Ltd* [2004] ECR I-10415, C-338/02 *Fixtures Marketing Ltd v Svenska Spel AB* [2004] ECR I-10497 and C-444/02 *Fixtures Marketing Ltd v Organismos Prognostikon Agonon Podosfairou AE (OPAP)* [2004] ECR I-10549. For an analysis of the judgments see MJ Davison and PB Hugenholtz 'Football Fixtures, Horseraces and Spin Offs: the ECJ Domesticates the Database Right' (2005) 27 EIPR 113.

responsible for licensing outside the UK databases containing the fixture lists produced by the English and Scottish football leagues. BHB organises the fixtures of the British horse races and also compiles a database with the details of these fixtures. Veikkaus, Svenska Spel and OPAP—the three defendants against whom Fixtures Marketing had brought actions—organise betting pools in Finland, Sweden and Greece respectively; they all extract data from Fixtures Marketing's databases without having the licence to do so. William Hill, which is one of the main horseracing betting operators in the UK, does subscribe to the database maintained by BHB; it offers an on-line betting service for all main horse races in the UK and a small portion of the information displayed on its internet sites comes from BHB's database.

The questions referred from the national courts regarded the definition of the term 'database' and the scope of the *sui generis* right in the Database Directive. The answers which the ECJ gave illuminate to a certain extent the main aspects of the *sui generis* right and somewhat clarify whether and under which circumstances databases found within software may be protected by the *sui generis* right and computer programs may be protected as databases.

Even though this chapter focuses on the effect of the Database Directive to the legal protection of computer programs, it is essential that we first discuss the two types of database protection established in the Directive—copyright and the *sui generis* database right—and then proceed to examine in section 5 how computer programs can benefit from these. In the parts discussing the Database Directive *per se*, emphasis will be placed on the *sui generis* right and in particular on the four sporting databases judgments, rather than on database copyright; this is because, as will be demonstrated in section 5, computer programs and their components rarely qualify for database copyright.

## 2 DATABASE DEFINITION

Before examining whether a certain compilation qualifies for copyright or *sui generis* protection, the compilation itself must fit under the definition of database given in article 1(2) of the Database Directive: it must be 'a collection of independent works, data or other materials, organised in a systematic or methodical way and individually accessible by electronic or other means'.

Regarding the type of material which may be included in databases, the term ‘works’ probably refers to copyright works, such as literary or artistic ones, whereas ‘data’ refers to facts, including numerical ones. ‘Other materials’ probably refers to information in general.<sup>16</sup> Recital 17 supports this interpretation of article 1(2): it states that ‘the term “database” should be understood to include literary, artistic, musical or other collections of works or collections of other material such as texts, sound, images, numbers, facts and data’.

Save for a random arrangement, pretty much any arrangement of works (individually protected by copyright or not) and data may be classified as systematic and methodical.<sup>17</sup> After the implementation of the Database Directive, national courts construed this requirement very broadly and found that almost any arrangement of data can qualify as a database: telephone directories, football fixture lists, news websites, trade directories and classified ads in a newspaper have all been found to satisfy the Directive’s database definition.<sup>18</sup> Nevertheless, some form of systematic arrangement must be present within the database. The internet is a good example of a collection of independent and individually accessible materials which does not qualify as a database because its content is not systematically arranged; search engines index web pages and allow users to retrieve the ones corresponding to their queries, but they are computer programs external to the internet itself—therefore the internet is not a systematically arranged collection of materials.<sup>19</sup>

Neither the Directive nor its recitals explain when works, data and other materials found within a database are ‘independent’ and ‘individually accessible’. The latter requirement is probably connected to the requirement for methodical and systematic arrangement. The content is ‘individually accessible’ if the compilation is searchable and each of its materials can be perceived distinctly rather than be retrieved individually.<sup>20</sup> For instance, when one searches Westlaw for a particular English Court of Appeals judgment by typing in the names of the parties, the judgment in question will be retrieved along with the judgment on the

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<sup>16</sup> Davison 2003 (n 13) 73.

<sup>17</sup> IA Stamatoudi *Copyright and Multimedia Products: a Comparative Analysis* (Cambridge University Press Cambridge 2002) 93.

<sup>18</sup> T Aplin ‘The EU Database Directive: Taking Stock’ in F Macmillan (ed) *New Directions in Copyright Law* (Edward Elgar Publishing Cheltenham 2006) Volume 2, 99 and PB Hugenholtz ‘The New Database Right: Early Case Law from Europe’ (Ninth Annual Conference on International IP Law & Policy 19-20 April 2001).

<sup>19</sup> P Torremans and J Holyoak *Intellectual Property Law* (4<sup>th</sup> edn Butterworths London 2005) 536.

<sup>20</sup> Aplin (n 18).

same case delivered at first instance: the desired judgment is not retrieved separately, as it is not the only match displayed on the computer screen, but Westlaw's case law content is searchable and individual judgments can be perceived distinctly.

The requirement for individual accessibility in article 1(2) is not accompanied by the stipulation that the contents of the database must be individually accessible by humans. This is the loophole which allows computer programs or parts thereof to fall into the scope of the Database Directive and thus allows software manufacturers to claim two layers of protection for their programs. When a collection of data is found within a computer program, such as the one found in the *Mars v Teknowledge* case discussed below in section 5.1, the data is not individually accessible to humans but instead to other parts of the program; it has been placed there not for humans to extract but for the purpose of creating a functioning computer program. Given that computer programs typically contain large amounts of data or other information, many of them could fall under the scope of the Database Directive.<sup>21</sup>

Regarding the requirement in article 1(2) that elements of a database must be independent, the ECJ held in *OPAP* that the materials comprising a collection are independent when they can be separated from one another 'without their informative, literary, artistic, musical or other value being affected'.<sup>22</sup> An example of a collection which is not a database because its elements are not independent from one another is a film. A film is a collection of individual frames which are individually accessible (they can be individually perceived if the film is played in slow motion) but cannot stand alone, as they cannot entertain or inform people in the same way the whole film does.<sup>23</sup> The interpretation given in *OPAP* is consistent with recital 17 to the Directive, which states that films, recordings, books, songs and literary works as such (as opposed to collections of literary works) do not fall under the Directive's scope: individual chapters taken from a book or the lyrics of a song without the accompanying music do not have the same literary or artistic value as when found within the book or the song.

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<sup>21</sup> Davison 2003 (n 13) 71.

<sup>22</sup> *OPAP* (n 15) para 29. Two years before the ECJ delivered this judgment, E Derclaye suggested the same interpretation of the independence requirement. See her 'Do sections 3 and 3A of the CDPA Violate the Database Directive? A Closer Look at the Definition of a Database in the U.K. and its Compatibility with European Law' (2002) 24 EIPR 466.

<sup>23</sup> Davison 2003 (n 13) 72 and S Chalton 'The Copyright and Rights in Databases Regulations 1997: Some Outstanding Issues on Implementation of the Database Directive' (1998) 20 EIPR 178, 178-182.



By stating that literary works do not constitute databases, recital 17 could have provided a good argument for excluding all computer programs (not just the ones used in manufacturing or operating electronic databases) from the Database Directive's scope: computer programs are protected as literary works under article 1(1) of the Software Directive. However, given that the Database Directive *per se* (as opposed to its preamble) does not exclude literary works from its definition of 'database', computer programs stay within its scope.

### 3 COPYRIGHT PROTECTION OF DATABASES

The Directive grants copyright protection to a database provided the selection and arrangement of its contents constitutes the author's own intellectual creation; no other criteria determine whether the database is worthy of copyright protection.<sup>24</sup> The originality criterion stipulated here is the same as the one in the Software Directive: it is not sufficient to demonstrate that the author invested labour, skill or effort in creating the database, but at the same time it is not required that the author was highly creative while building the database. Originality is substantiated if the database is the result of effort combined with the exercise of some intellectual skills.<sup>25</sup> Furthermore, mirroring recital 8 to the Software Directive, recital 16 to the Database Directive stipulates that no aesthetic or qualitative criteria should be applied to determine if a database is susceptible of copyright protection.

Copyright in a database protects the selection and arrangement of its content and not the content itself.<sup>26</sup> Copyright infringement occurs only if a substantial part of the selection or arrangement of the database has been reproduced—the reproduction of content from the database does not infringe its copyright, provided the selection or arrangement of the content has not been copied. For instance, a third party is prohibited from copying the structure used in the Yellow Pages database for restaurants in Edinburgh, but is not prohibited from copying the records of individual restaurants. As it will be explained below, if the relevant Yellow Pages database is also protected by the *sui generis* right, third parties will be prohibited from copying the records and/or using them to create another database; but this would be due to the *sui generis* right and not the copyright protecting the database.

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<sup>24</sup> Database Directive art 3(1).

<sup>25</sup> Davison 2003 (n 13) 20.

<sup>26</sup> Database Directive art 1(1).

On the other hand, elements of a database which are protected themselves by copyright cannot be extracted without authorisation, because such an act would constitute unauthorised reproduction. For instance, copyright protecting an electronic database of articles published in journals does not prohibit unauthorised users from searching for and copying a particular article; such an action is prohibited by the copyright which protects the article individually as a literary work. If databases were only protected by copyright, their owners would face problems when non-copyright content would be reproduced—for example statistical data or facts. This is where the *sui generis* database right fits in: it prevents the reproduction of content, regardless of whether the structure has been copied.

The rights reserved for database authors are aligned with the author's rights provided for in the Berne Convention and the WCT. The author of the database has the exclusive right to make temporary or permanent copies; distribute the database or copies thereof to the public; communicate, display or perform to the public; translate, adapt, arrange or alter it in any way; reproduce, distribute, communicate, display or perform to the public the results of any translation, adaptation, arrangement or other alteration.<sup>27</sup> According to articles 6(1) and 15 of the Directive, lawful users are entitled to carry out without authorisation any of these acts so long as they are necessary for accessing and using the contents of the database, and these user rights cannot be contractually restricted or abolished. In view of these provisions, lawful users are allowed to reproduce the whole or part of a database on their computer screen without infringing the author's copyright.

The Directive does not define the term 'lawful user', but it is safe to assume that it includes licensees of the copyright holder and also anyone else who has acquired via resale a copy of a database available in CD-ROM format and who therefore has no contractual ties with the copyright holder.<sup>28</sup> It is unlikely that the term is broad enough to include anyone who is using the database for fair dealing purposes without having a licence or without having acquired the database via resale; article 6(1) states that '[w]here the lawful user is authorised to use only part of the database, this provision shall apply only to that part', which implies

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<sup>27</sup> Database Directive art 5.

<sup>28</sup> Recital 34 of the Database Directive refers to a user authorised by agreement with the rightholder to access and use the database. The original proposal for the directive referred to 'a person having acquired a right to use the database'.

that lawful users are only those who have some sort of authorisation to use the database and not third parties who use the database for fair dealing purposes.<sup>29</sup>

Apart from the rights accorded to lawful users by virtue of article 6(1), paragraph (2) of the same article allows Member States to adopt additional limitations to copyright holders' rights. Member States may allow reproduction of non-electronic databases for private purposes, use of databases for teaching or scientific research purposes or for purposes of public security or an administrative or judicial procedure, or may preserve any other user rights which are traditionally allowed under national law in connection to copyright-protected databases.

As for the duration of copyright protecting databases, it is the one stipulated in the Directive on the term of protection of copyright: it lasts for the lifetime of the author plus 70 years or, if the author is a legal person, for a period of 70 years starting from making the database available to the public.<sup>30</sup>

#### 4 THE *SUI GENERIS* DATABASE RIGHT

### 4.1 Subsistence of the *sui generis* right and spin-off theory

Prior to the creation of the *sui generis* database right, in some Member States unauthorised reproduction and re-utilisation of database content could be prevented by virtue of national unfair competition laws.<sup>31</sup> Since these laws were not harmonised, the Community legislature decided that the optimum way to protect the content of a database was to create a second tier of protection: the *sui generis* database right, aimed at empowering the maker of a database to prevent the unauthorised extraction and/or re-utilisation of content.<sup>32</sup> The two tiers of

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<sup>29</sup> Davison 2003 (n 13) 77-78.

<sup>30</sup> Art 2(c) of the Database Directive provides that the Duration Directive applies to copyright databases. Directive 93/98 of 29 October 1993 harmonising the term of protection of copyright and certain related rights, [1993] OJ L290/9 (Duration Directive).

<sup>31</sup> As discussed in section 3 above, as far as copyright databases are concerned content reproduction constitutes copyright infringement only if, along with the content, the arrangement or selection of the content is also copied.

<sup>32</sup> Database Directive recitals 6 and 41.

protection, copyright and *sui generis* right, exist in parallel: original databases qualify for copyright protection and databases – original or not – which are the result of substantial investment qualify for *sui generis* protection.<sup>33</sup>

Unlike database copyright, the *sui generis* database right is not protected across the Berne Union. It is a creation of the European Community legislature and therefore not subject to the national treatment principle. According to article 11(1) and (2) of the Database Directive, the *sui generis* right benefits makers and rightholders of databases who are nationals of an EU Member State or have their habitual residence in the EU; it also benefits legal entities which have their registered office, central administration or principle place of business within the EU.<sup>34</sup> It has been suggested that by not offering national treatment to database makers who reside or have their offices outside the Community but within the Berne Union, the EU breaches its obligation under the Berne Convention: under Article 5 of the Berne Convention, all EU Member States must extend to nationals of all signatories to the Convention the same copyright protection that they provide to their own nationals. If we accept that the database right is in fact a type of low-level copyright for works which satisfy the ‘sweat of the brow’ originality requirement and that the rights reserved for the database maker as well as the exceptions to the database right are very similar to the ones pertinent to copyright, the Database Directive should protect the database right across the Berne Union.<sup>35</sup>

Indeed, the analysis of the *sui generis* right throughout section 4 of this chapter provides ample evidence that the right is a low-level copyright rather than an unfair competition rule posing as an intellectual property right.<sup>36</sup> Even though the Proposal for a database Directive described the *sui generis* database right as an unfair competition rule aimed at protecting the content of a database from unauthorised reproduction and re-utilisation, and stated that the right was inspired by existing unfair competition laws in some Member States,<sup>37</sup> the Database Directive eventually created a strong intellectual property right, one offering much

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<sup>33</sup> Database Directive art 7(4).

<sup>34</sup> Art 11(3) provides that bilateral agreements between the Community and third countries can extend the *sui generis* right to databases made in these countries.

<sup>35</sup> Davison 2003 (n 13) 222-224.

<sup>36</sup> Stamatoudi argues that the *sui generis* database right is in fact an unfair competition rule. Stamatoudi (n 17) 96.

<sup>37</sup> Explanatory Memorandum to the Proposal for a Council Directive on the legal protection of databases COM(92)24 final – SYN (13 May 1992) para 3.2.8.

wider protection than an unfair competition rule would.<sup>38</sup> This is attested by three different aspects of the right.

First, the criteria determining whether a database is susceptible of the *sui generis* database right are similar to the ones determining whether the database is protected by copyright: as it will be demonstrated later on in this section, all copyright databases fulfil the substantial qualitative investment criterion and are therefore also protected by the *sui generis* right. Secondly, the author of a copyright database has very similar exclusive rights to the ones held by the maker of a *sui generis* protected database: extraction (in the case of a *sui generis* protected database) equals reproduction (in the case of a copyright database), whereas re-utilisation is an amalgam of communication, distribution and rental. Last but not least, the low-copyright nature of the *sui generis* right is proven by the fact that exceptions to the exclusive rights held by a database owner are very similar to the exceptions to the exclusive rights held by the author of a copyright database. In fact, the former are actually much narrower and entirely optional for Member States to adopt. As already discussed in section 3 above, article 6(1) of the Directive allows lawful users to carry out without authorisation any of the acts reserved for the copyright holder, so long as these are necessary for accessing and using the database's contents; no equivalent blanket exception exists for users of *sui generis* protected databases, not even as an optional exception at the discretion of Member States. For all these reasons, the *sui generis* right should be considered a low-level form of copyright which ought to be protected under the Berne Convention.

Returning to scope of the *sui generis* database right, it is bestowed, according to article 7(1) of the Database Directive, on the maker of a database who has made a substantial investment—in terms of quantity and /or quality—in obtaining, verifying or presenting the content of the database. The required investment may consist in the expenditure of financial resources or time, effort and energy.<sup>39</sup> So far, national courts have construed article 7(1) in a broad way: telephone directories, recipe books and webpages have all been found eligible for *sui generis* protection.<sup>40</sup> It should be noted here that the owner of the *sui generis* right is the 'maker' of the database: since the *sui generis* right does not require that the database be the author's own intellectual creation, the term 'author' is not appropriate. According to recital

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<sup>38</sup> Bently agrees. L Bently and B Sherman Intellectual Property Law (2nd edn Oxford University Press Oxford 2004) 298-299.

<sup>39</sup> Database Directive recital 40.

<sup>40</sup> G Westkamp 'Balancing Database *Sui Generis* Right Protection with European Monopoly Control under Article 82 E.C.' (2001) 22 ECLR 13, 13.



41, the maker is 'the person who takes the initiative and the risk of investing' and, in the case of subcontracting, the contractor and not the subcontractor is deemed to be the maker of the database. Member States are free to stipulate that, if a database is made by employees in the course of their employment duties, their employer will be regarded as the database maker and holder of the *sui generis* right.<sup>41</sup>

Most databases satisfy the requirement that substantial quantitative investment took place during their construction. Any 'sweat of the brow' activities, such as the mundane and labour-intensive tasks of obtaining all the materials for the database, verifying them and arranging them in an alphabetical order satisfy this requirement.<sup>42</sup> In the case of the requirement for substantive qualitative investment, it is safe to assume that any database eligible for copyright is also eligible for *sui generis* protection: when the selection and arrangement of the contents is the author's own intellectual creation, it follows that substantial qualitative investment must have taken place when the contents were collected and presented. Therefore, even though in theory database copyright and the database *sui generis* right exist in parallel, in practice copyright databases are also *sui generis* protected.

An important question which has arisen in the context of the *sui generis* database right is whether this protects databases which are the by-product or spin-off of an investment directed at another goal. For instance, if there has been substantial investment in scheduling the broadcasting program of a television channel, is the resulting television listing (which is a by-product of scheduling the program) worthy of database right protection? The answer to this question matters because it determines the scope of the *sui generis* database right and the number of databases which are not protected and thus belong to the public domain.

The spin-off question first arose in the Netherlands. Some Dutch courts adopted the so called 'spin-off theory', according to which spin-offs are not protected.<sup>43</sup> For example, it was held that the television listings of a broadcasting organisation are not worthy of protection, as they are the by-product of the broadcaster's main commercial activity, which is to make radio and

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<sup>41</sup> Database Directive recital 29.

<sup>42</sup> Davison 2003 (n 13) 83.

<sup>43</sup> For a detailed account of the creation and use of the spin-off theory in the Netherlands, see E Derclaye 'Databases *Sui generis* Right: Should we Adopt the Spin-off Theory?' (2004) 26 EIPR 402.

television programs.<sup>44</sup> Similarly, the list of article headings in a newspaper's website is not a database whose creation required substantial investment by the newspaper publishers—their investment was directed at commissioning and gathering the articles so as to publish the newspaper.<sup>45</sup> On the other hand, some Dutch courts protected spin-offs. For example, the Hoge Raad (Dutch Supreme Court) found that an internet-based database of properties available for sale was protected by the *sui generis* right, even though the database was created by NVM, an organisation of real estate brokers, with the objective to assist themselves in their own work (rather than inform the general public of properties available for sale).<sup>46</sup>

In *Svenska*, one of the recent sporting database preliminary rulings, the ECJ shed light on the validity of the spin-off theory. Svenska Spel claimed that the fixtures databases compiled by the English and Scottish football leagues and exploited by Fixtures Marketing are a spin-off of the main commercial activity of the leagues, which is to create the fixtures (ie set up football games), and are therefore not protected by the *sui generis* database right. The Swedish Supreme Court asked the ECJ whether investment primarily intended to create something independent from the database can be deemed 'substantial investment' for the purposes of article 7.1 of the Database Directive.

In its answer to this question, the ECJ avoided using the term 'spin-off theory'. Even so, its ruling highlights how difficult it is for spin-offs to satisfy the substantial investment requirement. The ECJ held that, in principle, a database which is the by-product of an investment directed at another goal is not excluded from *sui generis* protection. However, the ECJ continued, *sui generis* protection is afforded only if there has been substantial investment in obtaining, verifying and presenting the material contained in the database and this investment must be separate from the investment in creating the material. In particular, investment in 'obtaining' refers to seeking out and collecting independent materials which already exist – it does not cover resources expended in the course of creating the material.<sup>47</sup>

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<sup>44</sup> *NV Holdingmaatschappij de Telegraph v Nederlandse Omroep Stichting* [2001] Mediaforum 94 (Gerechtshof Den Haag, 30 January 2001).

<sup>45</sup> *Algemeen Dagblad et al v Eureka Internetdiensten* (Arrondissementsrechtbank Rotterdam, 22 August 2000). <<http://www.ivir.nl/files/database/index.html>> (accessed 20 April 2005).

<sup>46</sup> *NVM v De Telegraaf* (Hoge Raad, 22 March 2002) <<http://www.ivir.nl/files/database/index.html>> (accessed 20 April 2005).

<sup>47</sup> *Svenska* (n 15) paras 29-37. It should be noted that all four national courts involved in the sporting database cases asked the ECJ to clarify the meaning of 'obtaining' in article 7(1) or the scope of article 7 in its entirety; and in all four judgments the ECJ clarified the distinction between creating and

In the case at hand, the ECJ found that the fixtures were created rather than obtained, and that verifying and presenting them so as to produce the fixture databases was indivisibly linked to creating the fixtures; therefore the fixtures databases were not protected by the *sui generis* right.<sup>48</sup>

*Svenska* will have important consequences for the database industry, as makers of databases consisting of created data (television schedules, telephone subscriber directories, train timetables etc) will have to demonstrate that they deployed substantial investment in verifying and presenting the data—any investment linked to the creation of data will not count as investment in obtaining it.

## 4.2 Extraction and re-utilisation

The most important provisions of the Database Directive are the ones relating to the right of the database maker to prevent extraction and/or re-utilisation of the content of the database—this is the essence of the *sui generis* database right.<sup>49</sup>

Lawful users of a database are allowed to extract and/or re-utilise insubstantial parts of its content for any purpose whatsoever;<sup>50</sup> in fact, database makers are not allowed to impose contractual terms which forbid lawful users from carrying out these acts.<sup>51</sup> Article 7(1) provides that the *sui generis* right holder can prevent extraction and/or re-utilisation only of a

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obtaining data. However, the Hogsta Domstolen (Swedish Supreme Court) was the only one which explicitly asked whether investment directed at creating something independent from the database counts as substantial investment towards the creation of the database; therefore, all mentions in this chapter of the ECJ's view on this matter are cited as references to the *Svenska* ruling.

<sup>48</sup> *Svenska* paras 31-36. In her opinion on the *Svenska* case, Advocate General Stix-Hackl reached a different conclusion from that reached by the ECJ. She suggested that 'obtaining' covers the creation of data 'where the creation of data coincides with its collection and screening' (para 56). She went on to find that the fixture lists exploited by Fixtures Marketing were covered by the database *sui generis* right, because the fixtures should be considered either pre-existing data or data created at the same time that its processing took place (paras 58-59). Fortunately the ECJ adopted a much more clear-cut definition of 'obtaining', one which is closer to the common sense meaning of the word.

<sup>49</sup> Art 7 deals with the database maker's right to prevent extraction and/or re-utilisation of database content.

<sup>50</sup> Database Directive art 8(1). As in the context of copyright protecting databases, lawful user of a *sui generis* protected database is anyone who has a licence to use the database or part of it or anyone who has acquired it via resale.

<sup>51</sup> Art 15.

substantial part or the whole of the database. The purpose of such acts is immaterial: recital 42 states they are prohibited regardless of whether the purpose of the user is to create another database or any other activity. Moreover, article 7(5) provides that the right holder can also prevent the repeated and systematic extraction and/or re-utilisation of insubstantial parts of the contents of the database, if such acts 'conflict with the normal exploitation of that database or unreasonably prejudice the legitimate interests of the maker'.

In the context of the *sui generis* database right, 'extraction' is the equivalent of the copyright holder's right to reproduction, and is defined in article 7(2)(a) as 'the permanent or temporary transfer of all or a substantial part of the contents of a database to another medium by any means or in any form'. Article 7(2)(a) is badly drafted. First of all, it seems to define the term 'substantial extraction' rather than the term 'extraction'. And secondly, it overlooks that, in the case of electronic databases, 'extraction' does not equal 'transfer', but rather 'copying': every time one uses a CD-ROM containing the Oxford English Dictionary, a transient copy of the database is made into the computer's RAM. Advocate General Stix-Hackl's opinion on the BHB case reflected this reality: she confirmed that, for the purposes of the Database Directive, 'extraction' should not 'be construed as meaning that the extracted parts must no longer be in the database if the prohibition is to take effect'.<sup>52</sup>

Article 7(2)(a) is not the only provision in the Database Directive which fails to take into account the technical process allowing a user to access an electronic database. According to recital 44, searching an electronic database for a particular item and bringing it up on the screen requires special authorisation by the database maker if it involves the permanent or temporary transfer of all or a substantial part of the database content to another medium.<sup>53</sup> In actual fact, the use of electronic databases always involves the creation of a temporary copy of the whole or part of the database, and lawful users should not need special authorisation to create those temporary copies and thus use the database.

Searching on-line databases (which constitute the vast majority of electronic databases) requires creating a transient copy of their content in the RAM of the user's server and also in the RAM of the user's computer. For big databases such as Lexis or Westlaw, only a small

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<sup>52</sup> BHB (n 15), opinion of Advocate General Stix-Hackl, para 100.

<sup>53</sup> Recital 44 states: 'whereas, when on-screen display of the contents of the database necessitates the permanent or temporary transfer of all or a substantial part of such contents to another medium, that act should be subject to authorisation by the rightholder'.



part is copied on the server on the computer's RAM; but for smaller databases, the whole or substantial part of them is copied. In the case of databases contained in CD-ROMs (such as an interactive encyclopaedia or a BT phone directory), users create a temporary copy of the database in the computer's RAM so as to search the database and retrieve information from it.<sup>54</sup>

Article 7(2)(a) is clearly not drafted in a manner which safeguards basic user rights of *sui generis* protected databases. The scope of the database maker's right to prohibit substantial extraction as envisaged in article 7(1) would have been much better delineated if it explicitly stated that users are allowed to access the database but not make permanent reproductions of substantial parts of its content.<sup>55</sup> This way, lawful users would be allowed to create transient copies of electronic databases when searching them, without infringing article 7(1).

In the recent *BHB* judgment, the ECJ construed article 7(2)(a) in a liberal way. The interpretation offered was not based on the wording of the provision; presumably it was based on the technical reality of electronic databases, which these days comprise the main bulk of database products. The ECJ found that, in the case of databases which have been made available to the public, the concepts of extraction and/or re-utilisation do not cover consultation of or access to the database.<sup>56</sup> In other words, the lawful user of a database is allowed to make a transient copy of the database or part of it to search it. The effect of Article 7(1) kicks in when it comes to making a permanent copy of the search results—for example, in the computer's hard drive or in a print-out: the user is allowed to make permanent copies only of insubstantial parts of the database content.

According to the July 2004 Commission working paper on the review of Community copyright legislation, the Commission is aware of the shortcomings of articles 7(1) and 7(2)(a): the paper proposes the alignment of the reproduction right in the Database Directive

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<sup>54</sup> Many commercial databases distributed in the form of CD-ROMs do not allow users to copy them in the computer's hard drive. And even when users are allowed to create a permanent copy in the computer's hard drive, every time they use the database a transient copy of it is again created in the computer's RAM.

<sup>55</sup> Davison argues that the *sui generis* right should prohibit only the production of permanent copies. Davison 2003 (n 13) 275-276.

<sup>56</sup> *BHB* (n 15) paras 54 and 55.



with the reproduction right envisaged in the Information Society Directive.<sup>57</sup> Article 5(1) of the Information Society Directive, which applies to copyright works other than databases and software, provides that temporary reproductions of works do not require authorisation from the copyright holder provided they have no economic significance and their purpose is to enable transmission of the work in a network by an intermediary or to enable a lawful use of the work. Once the Database Directive is amended so as to allow for unauthorised temporary reproductions of copyright or *sui generis* right protected databases, lawful users will be able to search electronic databases without infringing the *sui generis* right protecting them.

As far as the re-utilisation right is concerned, it is a combination of the communication, distribution and rental rights which copyright holders enjoy. A database maker can prevent users from making available to the public all or a substantial part of the database content by way of distributing or renting hard copies or CD-ROMs of the database, or making the database available on-line or in any other way.<sup>58</sup>

An important practical question regarding the right to prevent extraction and/or re-utilisation is when the content extracted and/or reutilised forms a substantial part of the whole of the database content. Article 7(1) says that the extracted content must be quantitatively or qualitatively substantial. In the *BHB* the ECJ held that the intrinsic value of the extracted content is not a factor in determining if it consists a substantial part of the database content in its entirety. Predictably, it held that 'quantitatively' refers to the assessment of the amount of extracted data in relation to the total amount of data included in the database; but more interestingly, it held that 'qualitatively' relates to the amount of investment in obtaining, verifying or presenting the extracted content. Even if the extracted data represents only a very small part of the database's content, the extraction could be unlawful if that very small part of database content represents a significant investment which took place during the creation of the database.<sup>59</sup>

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<sup>57</sup> Staff working paper on the review of the EC legal framework in the field of copyright and related rights, available at <[http://europa.eu.int/comm/internal\\_market/copyright/docs/review/sec-2004-995\\_en.pdf](http://europa.eu.int/comm/internal_market/copyright/docs/review/sec-2004-995_en.pdf)> (Copyright Review Paper) para 2.1.3.2.

<sup>58</sup> Database Directive Art 7(2)(b). This particular subparagraph contains the same mistake as subparagraph (a): it defines re-utilisation as 'any form of making available to the public all or a substantial part of the contents of the database', a definition which seems to correspond to the term 'substantial re-utilisation' rather than the term 're-utilisation'.

<sup>59</sup> *BHB* (n 15) paras 70-72.

Member States have the discretion to adopt rules that allow lawful users to extract and/or re-utilise substantial parts of the database in certain situations. Article 9 lists three optional user rights, which mirror the ones provided for lawful users of copyright-protected databases in article 6(2)(a), (b) and (c): substantial extraction and/or re-utilisation may take place for the purpose of teaching or scientific research, for purposes of public security or an administrative or judicial procedure, or, only as far as non-electronic databases are concerned, for private purposes.

Extraction and/or re-utilisation of substantial part of a database's content are not the only acts which infringe the *sui generis* right protecting the database. Lawful users may also infringe it if, by repeatedly and systematically extracting and/or re-utilising insubstantial parts of the database, they act in a way that conflicts with the normal exploitation of the database or prejudices the legitimate interests of the database maker. This is stipulated in article 7(5) and is repeated in broader terms in article 8(2).<sup>60</sup> One of the questions referred to the ECJ by the English Court of Appeal in *BHB* concerned the scope of article 7(5). The ECJ answered that the provision prohibits acts of extraction and/or re-utilisation when the repeated and systematic nature of these acts could lead to the reconstitution of the whole or a substantial part of the database, as such a situation would seriously prejudice the investment made by the database maker. The Court went on to repeat what recital 42 states: it is immaterial whether the purpose of the extraction and re-utilisation actually was the creation of a new competing database or some other activity other than the creation of a database.<sup>61</sup> In the case at hand, the ECJ found that the insubstantial extractions from BHB's database which William Hill performed regularly and systematically (names of horses taking part in races, date, time and name of races and racecourses) could not have as a cumulative effect the reconstitution of the whole or substantial part of BHB's database.<sup>62</sup>

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<sup>60</sup> Art 8(2) provides that the lawful user of a database is not allowed to perform any acts 'which conflict with normal exploitation of the database or unreasonably prejudice the legitimate interests of the maker of the database'. For instance, a lawful user cannot extract content from the *sui generis* but not copyright protected database and subsequently rearrange it to produce and commercially exploit a new database. See Westkamp (n 40) 14.

<sup>61</sup> *BHB* (n 15) paras 87-89.

<sup>62</sup> *ibid* para 90.

## 4.3 Term of protection

According to article 10, the term of protection for the database right is fifteen years. The term begins on 1 January of the year following the date of completion of the database; however, if the database is made available to the public before this fifteen-year period comes to an end, this rule is displaced and the database right expires fifteen years after 1 January of the year following the date of making the database available to the public.<sup>63</sup>

One of the controversial provisions of the Database Directive is article 10(3), which states that if a substantial new investment is made to a database, the fifteen-year term starts afresh. It is immaterial whether this substantial new investment took place while the first term of protection was still running or after its expiry. Any kind of substantial change (evaluated quantitatively or qualitatively) which results in the database being considered as a substantial new investment (again the new investment should be evaluated quantitatively or qualitatively) causes this new database to be granted a new fifteen-year term, or can cause a no longer protected database to be protected anew. Article 10(3) and recital 55 give examples of acts which qualify as substantial changes: accumulation of successive additions, deletions or alterations, or substantial verification of the content of the database. The substantial changes listed in article 10(3) and recital 55 seem to be examples of quantitative changes—what constitutes a qualitative change is harder to determine. It has been submitted that changes to the selection or arrangement of the content of a database could qualify as qualitatively substantive changes.<sup>64</sup> Database owners bear the burden of proof when claiming that due to substantial modification of content their databases qualify for a new term of protection.<sup>65</sup>

Article 10(3) is controversial because it potentially bestows dynamic databases (ie databases which require constant maintenance so as to remain up-to-date) with perpetually renewed terms of protection. The content of most electronic databases is regularly updated because new data is added to them; this is the case with Amazon, Lexis, Westlaw and sporting databases such as the ones maintained by Fixtures Marketing and BHB, to name but a few dynamic databases. In effect, the ‘sweat of the brow’ *sui generis* right grants dynamic databases a much lengthier term of protection than copyright, even though copyright protects

<sup>63</sup> Database Directive arts 10(1) and (2).

<sup>64</sup> Davison 2003 (n 13) 93.

<sup>65</sup> Database Directive recital 54.

intellectual creation. Article 10(3) is also controversial because it is feasible that the copyright content of a *sui generis* protected database (eg the short stories collected in a database with works by Canadian writers) will be protected against extraction and re-utilisation long after the copyright protecting the content has expired; and if this happens, the Directive's declaration in recital 46 that the *sui generis* right does not create a new right to database content becomes an empty promise.

One of the questions referred by the Court of Appeal in *BHB* concerned the scope of article 10(3). The court asked whether, in the context of this provision, the database which results from a substantial change in its contents is a new, separate database. William Hill (the defendant in the case) claimed that, because BHB continuously updated and verified its horse racing database, a series of new databases was created; therefore, by regularly extracting data on current races from these databases and using this data in its on-line betting service, William Hill had made a series of insubstantial extractions and reutilisations from a series of distinct databases and had not repeatedly extracted and re-utilised insubstantial parts of the same database—thus BHB's database right was not infringed under article 7(5).

Unfortunately, the ECJ deemed that it was not necessary to answer this question: it had already found that the insubstantial extractions carried out by William Hill did not infringe BHB's *sui generis* database right because they could not lead to the reconstitution of the whole or substantial part of BHB's database, and therefore there was no point in examining the scope of article 10(3). However, Advocate General Stix-Hackl did discuss the question in her opinion on the case. She suggested that the database which results from the substantial change to the content of an existing database is indeed a new, separate database. She added that the new term of protection starting once the substantial change occurs applies to the database in its entirety and not just to the parts which have been added or altered.<sup>66</sup>

## 5 EFFECT OF THE DATABASE DIRECTIVE ON THE LEGAL PROTECTION OF COMPUTER PROGRAMS

Even though the objective of the Database Directive was the harmonisation of the legal protection of databases in the EU and the creation of a right protecting content, the Directive

<sup>66</sup> *BHB* (n 15), opinion of Advocate General Stix-Hackl, para 152.

has had a side effect not envisaged by the Community legislators: it offers software manufacturers a means of protection which exists on top of the default copyright protection envisaged in the Software Directive. Provided that a particular computer program or part thereof is not used in the making or operation of a database and can fit under the definition of 'database' in article 1(2) of the Database Directive, its proprietor can claim that the structure and arrangement of the program or a component thereof is protected by database copyright and the content of the program or its component is protected by the *sui generis* database right.

In the case of a computer program or a particular software component qualifying for copyright protection under the Software Directive, claiming that it is also protected by copyright as a database does not afford the program's manufacturer an extra layer of legal protection. Article 5 of the Database Directive confers to database authors pretty much the same exclusive rights as article 4 of the Software Directive does to software authors. In both cases the copyright holder has the exclusive rights to reproduce, translate, distribute or rent the database or the software. However, claiming that the program or one of its components are protected by the *sui generis* database right has a particularly enhancing effect on the exclusive rights of the software manufacturer, as will be discussed below.

The Database Directive can also be useful to software proprietors for protecting parts of their software which do not qualify for copyright protection under the Software Directive. As discussed in chapter 2, it is not entirely clear which parts of a computer program are eligible for copyright protection under this Directive. Source and object code are, algorithms are not and interfaces rarely are. Apart from the fact that software often contains data compilations (eg compression tables) it is possible that menu command hierarchies and look-up tables found within a computer program constitute databases or that interfaces are databases consisting of various elements such as command hierarchies and look-up tables. All these databases residing in a computer program could theoretically be protected by database copyright and/or the *sui generis* database right if the respective requirements of the Database Directive are satisfied. In reality, most of these software components have structures copied from existing computer programs and therefore do not satisfy the originality criterion of database copyright; nevertheless, they often are the result of substantial investment and therefore qualify for database right protection.



So what are the benefits of claiming that a computer program or one of its components is protected by the *sui generis* database right? The most obvious benefit is that the software proprietor can prohibit copying of the *sui generis* protected objects, as copying them would constitute extraction of the whole of the database's content, an act which is prohibited under article 7(1) of the Software Directive. The holder of the *sui generis* database right protecting (part of) a computer program is also in the position to prohibit decompilation of (part of) the program, even if the purpose of the decompilation is the creation of interoperable software—a lawful user right which, in the context of software copyright, is unfettered under article 9(1) of the Software Directive. Decompilation involves the extraction of the program's machine code and its translation into human-readable source code; and under article 7(1) of the Database Directive would amount to extraction and re-utilisation of substantial part of the content of the computer program or the part of it which is protected by the *sui generis* database right. Under this scenario, the objective of article 6 of the Software Directive—the provision establishing the right to decompile for the purpose of creating interoperable software—is circumvented, innovation in the software industry is impeded and new software competing with the software protected under the database right cannot be manufactured and released into the relevant market.

Another reason why software producers might be keen to assert database rights over their computer programs is that technological protection measures (TPMs) applied to databases are protected more vigorously under EC law than TPMs applied to software. TPMs applied to a database which qualifies for copyright or for the *sui generis* database right are protected against circumvention under article 6 of the Information Society Directive.<sup>67</sup> On the other hand, technological measures protecting copyright software are governed by article 7(1)(c) of the Software Directive. Database TPMs are better protected than software TPMs for two reasons. First, devices circumventing TPMs which control access to and copying of databases are illegal if their primary purpose is circumvention, if they have limited commercial purpose other than circumvention, or if they are marketed for the purpose of circumvention; whereas devices circumventing TPMs applied to software are illegal only if their sole intended purpose is circumvention.<sup>68</sup> And secondly, illegal acts related to database TPMs are circumvention of TPMs and manufacture, trading, rental, promotion or possession

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<sup>67</sup> Art 6(3) of the Information Society Directive provides that the protection afforded to TPMs by art 6 of the same Directive also applies to measures protecting databases. Directive 2001/29/EC of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the Information Society [2001] OJ L167/10 (Information Society Directive).

<sup>68</sup> Information Society Directive art 6(2) and Software Directive art 7(1)(c) respectively.

for commercial purposes of circumvention devices; whereas in the case of software TPMs the only acts which are illegal are putting into circulation or possessing for commercial purposes circumvention devices—the act of circumvention itself is not illegal.<sup>69</sup>

In light of the above, it is understandable why software producers keen not to disclose the interfaces of their computer programs will apply a TPM to the latter under the pretext of protecting their investment in producing the databases built into their programs. This way, they can use the fortified defences of the Information Society Directive—rather than the more feeble ones of the Software Directive—to protect both the software and the databases within it. Article 6 of the Information Society Directive punishes circumvention even if the TPM happens to be applied not only to copyright works covered by that Directive but to other works as well, such as software. It should be noted that a TPM is protected against circumvention even if it impedes accessing or copying not just the work it protects but also another work which does not fall under the scope of the Information Society Directive but which happens to be bundled with the first work. For instance, a TPM applied to a DVD can prevent access not just to the movie within it but also to the software found within the DVD which allows users to choose different language versions. In the same way, a TPM applied to an interface within a computer program may prevent copying not only of the interface, but also of the computer program.

Given that the Database Directive excludes from its scope only computer programs used in the production or operation of electronic databases rather than computer programs in general,<sup>70</sup> the Directive could have the long-term effects that smaller software manufacturers trying to compete with manufacturers of popular computer programs are clearly disadvantaged and that competition within the internal market is restricted. In the remaining part of this section we will first illustrate that it is possible for software manufacturers to claim that part of their software is indeed a database; and subsequently we will examine to what extent it is feasible for a software manufacturer to claim that the whole of a computer program which he or she has created constitutes a database for the purposes of the Database Directive. In both these sections, emphasis will be placed on the protection of software by the database right, as claiming database copyright protection for a computer program does not afford any extra exclusive rights to the person or company who holds copyright to the

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<sup>69</sup> Information Society Directive arts 6(1) and 6(2) and art 7(2) of the Software Directive respectively.

<sup>70</sup> Database Directive art 1(3).

computer program by virtue of the Software Directive, whereas individual components of a program would only rarely be original enough to qualify for database copyright.

## 5.1 Databases within computer programs

Software developers who claim that *sui generis* protected databases reside within their software must bear *Svenska* in mind. In view of this judgment, the very fact that a database is a spin-off from the creation of a computer program does not exclude the database from the scope of the *sui generis* database right. However, software developers must be aware that any investment which went into the creation of the database's content does not count as substantial investment towards the creation of the database. For instance, source code forming part of an interface is database content whose creation does not count. Only investment towards collecting, verifying and presenting the content can justify database right protection.

Bearing *Svenska* in mind we will now look at two judgments, one from the UK and one from Australia, which have illustrated that it is possible to claim successfully before a court that databases worthy of legal protection can be found within computer programs.

The first of the judgments was delivered in the *Mars v Teknowledge* case.<sup>71</sup> The case concerned Cashflow, the software built in and operating vending machines manufactured by Mars. Cashflow contained data on denominations and authenticity of coins which could be used in the vending machines. Teknowledge reverse engineered and reprogrammed the software so that it would contain data on new coins which entered circulation after Mars had manufactured its vending machines; in the process of doing this, Teknowledge reproduced the data contained in the original software. The court, applying UK legislation which had implemented the Database Directive,<sup>72</sup> found that Teknowledge had infringed Mars' database right protecting the coin data, a point conceded by Teknowledge.<sup>73</sup>

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<sup>71</sup> *Mars v Teknowledge* (n 3).

<sup>72</sup> The Copyright and Rights in Databases Regulations 1997 SI 1997/3032.

<sup>73</sup> Teknowledge admitted it had reverse-engineered Mars' software, but claimed as a defence the common law right to repair goods. The argument was rejected by the court.

Given that during the proceedings Teknowledge had admitted infringing Mars' database right, the court did not elaborate on this point. However, it did say that a lot of experimental work, skill and judgement went into collecting the coin data, which presumably justified why the data compilation was protected by the database right.<sup>74</sup>

The *Mars v Teknowledge* case is a good example of how a computer program component can constitute a *sui generis* protected database. The coin data found within Cashflow was arranged systematically; each piece of data was independent from one another, as it could make sense by itself; and each piece of data was individually accessible: every time a coin was inserted in the machine, the software searched for and retrieved the data relevant to the coin's value and authenticity. The fact that the data was individually accessible to the software and not to humans does not bar the data compilation from being a database, as the Directive does not require that data must be individually accessible to humans. Moreover, the database is protected by the *sui generis* database right, as the data was collected and not created and there was substantial investment in the collection of the data—if the *Mars v Teknowledge* case had been decided after *Svenska*, the English court would still find the database to be protected by the database right.

The second judgment illustrating that parts of a computer program can be protected as databases comes from the High Court of Australia. In *Data Access v Powerflex*, the court found that a Huffman compression table contained within Dataflex, a piece of software which allows programmers to develop databases and database applications, was a compilation protected by copyright.<sup>75</sup> A Huffman compression table compresses data files within a computer program: it minimizes the amount of computer memory space a data file takes up by identifying certain sequences within the data and then coding them so that they are represented by a few bits.<sup>76</sup>

The High Court found that the creation of the Huffman table within Dataflex was the result of substantial skill, judgement and hard work and therefore the table was worthy of copyright. The decision was consistent with Australian copyright law. In Australia, compilations are protected by copyright as literary works under section 10 of the Australian

<sup>74</sup> *Mars v Teknowledge* (n 3) para 3.

<sup>75</sup> *Data Access Corporation v Powerflex Services Pty Ltd* (n 3).

<sup>76</sup> The definition of Huffman compression tables is taken from S Lai *The Copyright Protection of Computer Software in the United Kingdom* (Hart Oxford 2000) 217. A bit is the smallest unit of computerised data.

Copyright Act, and case law sets the originality threshold quite low—any compilation whose creation required ‘sweat of the brow’ activities is worthy of copyright.<sup>77</sup>

Would the compression table attract the same level of protection had the *Data Access* case been tried by an EU national court? In other words, would it constitute a database for the purposes of the Database Directive? And would it qualify for database copyright?

The Huffman compression table would probably fall under the Database Directive’s definition of database: it is a collection of independent data arranged systematically as a series of bits, and the data can be individually accessed by the Dataflex software. Regarding the legal protection the compression table would receive under Community law, it is unlikely that it would attract copyright protection, as the arrangement of its content would not be original enough to be covered by article 3(1) of the Database Directive (and there could not be copyright in the selection of content, as the data file which the Huffman table compressed already existed and therefore the data had already been selected or created). However, the table would most probably qualify for *sui generis* database right protection, as its creation required substantial investment in the presentation (arrangement) of data: the creation of a Huffman compression table involves carrying out a statistical analysis of the data, identifying how often each character occurs and devising short and long bit strings used for representing each character—characters that occur frequently are stored as a bit string of shorter length than characters which occur less frequently. It should be noted here that, following the same reasoning, look-up tables (which typically contain data) found within software also qualify for *sui generis* database protection. Look-up tables are often replicated in add-on software, ie software which enhances or expands the capabilities of other software; therefore software manufacturers would benefit from claiming that look-up tables are protected by the database right and cannot be copied by other manufacturers wishing to release add-ons.

As demonstrated in the two cases above, data compilations found within software can easily be protected by the *sui generis* database right; less straightforward is the case for extending the scope of the database right to software interfaces.

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<sup>77</sup> *Testra v Desktop Marketing Pty Ltd* [2001] FCA 612.



Interfaces are compilations of source code, data and algorithms.<sup>78</sup> As discussed in chapter 2, the Software Directive does not clarify whether interfaces are parts of computer programs susceptible of copyright, as it is not clear whether they are ideas or expressions of ideas; and in *Apple v Microsoft* and *Lotus v Borland* US courts have found user interfaces (desktop icons and a menu-command hierarchy respectively) to be devoid of copyright protection.<sup>79</sup> The Database Directive could be useful to software developers who do not want to license interface information to their competitors, or whose software interfaces have been copied without authorisation. In a court case, developers could claim database right infringement alongside copyright infringement: even if the court rejects the latter claim, there is a possibility that it will sustain the former. The problem which software manufacturers may face is that they must prove that they made a substantial investment in collecting, verifying or presenting existing data, rather than data they created themselves in the process of developing the computer program.

## 5.2 Computer programs protected as databases

It has been suggested that computer programs themselves often constitute databases, as they are collections of modules, data or other smaller databases (eg look-up or compression tables) and various other materials.<sup>80</sup> In fact, in the English case *Ibcos Computers v Barclays Mercantile Highland Finance* the court held that ADS, a general accounting software package, was a copyright compilation of programs, routines and sub-routines (the latter two are also known as modules and sub-modules).<sup>81</sup>

The judgment in *Ibcos* was delivered before the UK implemented the Database Directive, when UK law protected by copyright compilations which satisfied a low, 'sweat of the brow' originality threshold. It is unlikely that the ADS software would fall into the scope of the Database Directive. It would probably not qualify for copyright because it would not meet the high originality threshold of the Directive. And *sui generis* protection would be elusive,

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<sup>78</sup> P Samuelson and others 'A Manifesto Concerning the Legal Protection of Computer Programs' (1994) 94 Columbia Law Review 2308, 2326.

<sup>79</sup> *Apple Computer Inc v Microsoft Corporation* 799 F Supp 1006 (NC Cal 1992), *Lotus Development Corporation v Borland International* 516 US 233 (1996).

<sup>80</sup> Samuelson's manifesto, 2237

<sup>81</sup> [1994] FSR 275 (Ch).

as Ibcos, the company owning ADS, would not be able to prove substantial investment had taken place in collecting and presenting the individual programs and modules which make up ADS. Some of these modules pre-dated ADS, but others were created or modified for the purpose of developing ADS:<sup>82</sup> in view of *Svenska* the creation of these latter programs and modules does not count as substantial investment in collecting, so Ibcos would have to prove that ADS contained mainly pre-existing components. As for building the structure of ADS (the equivalent of ‘presenting’ for the purposes of article 7(1) of the Database Directive), this was probably closely linked to the creation or modification of the programs contained within ADS—in the process of developing software, drawing up the structure and writing the specifications for it is closely connected to actually writing the source code for its modules.

The discussion of *Ibcos* above illustrates that computer programs may constitute databases, albeit rarely *sui generis* right protected ones. As discussed in chapter 2, computer programs very often contain modules which programmers take from software libraries or from other programs they wrote in the past; however, some of these modules are modified to fit the purposes of the new computer program and yet some other modules are created from scratch. Therefore, bearing *Svenska* in mind, even if a computer program is a database, it will often not qualify for *sui generis* right protection, as some of its content is created and not collected. *Sui generis* protection is only afforded if the software manufacturer can demonstrate that most of the software’s content already existed and that the software’s creation was the result of a substantial investment in assembling and arranging the content.

## 6 COMPULSORY LICENSING OF DATABASES

We have already seen that it is possible for software producers to claim that *sui generis* protected databases are found within their software – data compilations, compression tables and interfaces can easily fall under the scope of article 7 of the Database Directive. It is more difficult, though perhaps not impossible, for software manufacturers to claim that their software in its entirety is in fact a database.

Software producers who can substantiate such claims are able to prevent lawful users from decompiling their software, as such an act would constitute substantial extraction of database

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<sup>82</sup> *ibid* 293.

content. A lawful user may have a substantial extraction request if the database in question is an interface of the computer program and he or she wants to decompile it in order to create a competing or interoperable program. If the software producer happens to be dominant in the relevant market, a refusal to give a licence allowing for substantial extraction could constitute dominance abuse under article 82(b) of the EC Treaty, as it would prevent the emergence of a new product.<sup>83</sup> In such a situation, the lawful user denied access to the database/interface could go to court to demand a compulsory licence from the database owner/software producer.

How easy is it to demand a compulsory licence for a database? As it happens, not particularly easy. The Database Directive has no compulsory licensing provisions and those who believe they are entitled to acquire licences have to rely on article 82 EC Treaty and relevant ECJ case law. It should be noted at this point that compulsory licensing and all relevant Community jurisprudence are discussed in great detail in section 5 of chapter 5. The analysis provided here is brief and tailored to compulsory licensing as far as databases are concerned.

Database markets in general often have a tendency towards natural monopolies. This applies particularly in the case of sole-source databases, ie databases whose owner is the single producer of the database's content (eg official statistics) or is the single holder of the source from which the content derives (eg the digitised version of the books held in a particular library).<sup>84</sup> Data created by the database owner is often called 'synthetic data'. Sole-source databases containing synthetic data (such as train timetables, records of subscribers to a telephone service, television or radio broadcasting schedules and sports fixtures) are very common and often the object of *sui generis* right infringement litigation, as competitors have no choice but to extract and re-utilise content from the database in order to create a new product or service. For instance, William Hill had no option but to take horseracing fixtures data from BHB's website in order to offer its on-line betting service. Furthermore, owners of dynamic sole-source databases can hold monopolies in the relevant markets for a very long time, as their databases are continuously updated and therefore benefit from perpetually

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<sup>83</sup> Art 82(b) of the EC Treaty provides that one of the forms that dominance abuse can take is 'limiting production, markets or technical development to the prejudice of consumers'.

<sup>84</sup> WR Cornish and D Llewelyn *Intellectual Property: Patents, Copyright, Trademarks and Allied Rights* (5th edn Sweet & Maxwell London 2003) 789.

renewed 15 year-long terms of protection.<sup>85</sup> It will be recalled that, according to Advocate General Stix-Hackl's opinion in BHB, every new term of protection applies to the whole of the database and not just to the parts which are the result of substantial modification.

Database owners holding monopolies will often abuse their dominance so as to deter competition. Their *sui generis* rights allow them to prevent third parties from extracting and re-utilising data and using it to create new (competing or not) products. Community lawmakers could have dealt with this problem by incorporating in the Database Directive compulsory licensing provisions; or they could omit any such provisions and hope that article 82 of the EC Treaty would protect competitors from abusive monopolies.

The first draft of the Database Directive chose the first solution.<sup>86</sup> Paragraphs (1) and (2) of article 8 of the proposed Directive stated that a fair and non-discriminatory licence to extract and re-utilise all or substantial part of a database's content should be granted in two situations: First, when works or materials contained in a publicly available database cannot be independently created, collected or obtained from another source; and secondly, when 'the database is made publicly available by a public body which is either established to assemble or disclose information pursuant to legislation, or is under a general duty to do so.'

However, the compulsory licensing provisions were dropped from the text of the Database Directive as it was adopted in 1996. Just as *Feist* had led to the creation of the *sui generis* right, the seminal 1995 ECJ judgment in *RTE & ITP v Commission* (known as *Magill*) prompted Community legislators to drop the compulsory licensing provisions, as they believed that the doctrine derived from this judgment on the application of article 82 EC Treaty to the exercise of intellectual property rights would be enough for protecting competitors in database markets from monopoly abuses.<sup>87</sup> Instead of the proposed article 8 in the first draft, there is article 16(3), which provides that in 2001 and every three years thereafter the Commission must prepare a report on the application of the Directive, which will review in particular whether the application of the *sui generis* right has led to dominance

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<sup>85</sup> Database Directive art 10(3).

<sup>86</sup> The first draft of the Database Directive not only provided for situations where database licensing was compulsory, but also proposed a much weaker *sui generis* database right than the one eventually introduced by the Directive. According to art 2(5) of the first draft, unauthorised extraction and re-utilisation was prohibited only if it was carried out for commercial purposes.

<sup>87</sup> Cases C-241 and 242/91 *Radio Telefís Éireann (RTE) & Independent Television Publications Ltd (ITP) v Commission of the European Communities* [1995] ECR I-743 (*Magill*). For a discussion on the effect of *Magill* on the *sui generis* database right see Westkamp (n 40).



abuses or any other interference with free competition. Such a report was submitted for the first time on 12 December 2005.<sup>88</sup> The report states that the ECJ's judgment in *Svenska*, where the Court interpreted narrowly the *sui generis* protection of non-original databases which contain data created by their owner, puts to rest any fears of abuse of dominant position as far as such databases (with 'created' data) are concerned.<sup>89</sup> Returning to the Database Directive, the only other mention of the dominance abuse risk in the text of the Directive is in recital 47, which states that the protection afforded by the *sui generis* database right should not result in dominance abuse and that Community and national competition laws apply to the database right.

The facts of *Magill* are well-known. The case dealt with the refusal of Irish and British broadcasting organisations to license the copyright in their television schedules to Magill, a company which wanted to publish a comprehensive weekly television guide. The ECJ held that the refusal of a dominant undertaking to licence copyright is an exercise of an exclusive right which equals abuse of dominance if three 'exceptional circumstances' are present: (a) the refusal to license prevents the emergence of a new product for which there is potential customer demand, (b) the refusal is likely to exclude all competition in a secondary market, and (c) the refusal to licence is unjustifiable.<sup>90</sup>

Unfortunately for aspiring recipients of compulsory licences, the subsequent ECJ rulings in *Oscar Bronner* and *IMS Health* —which affirmed the *Magill* doctrine—illustrated that the three exceptional circumstances present in *Magill* will only rarely be found to exist: in both rulings the Court stressed that the desired licence must be indispensable for the emergence of a new product or for new competitors to enter the market.<sup>91</sup>

In *Oscar Bronner*, the ECJ found that Mediaprint's refusal to allow Bronner (publisher of a daily Austrian newspaper with a small market share) to use its daily newspaper home distribution system was not an abuse of dominance: having access to Mediaprint's

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<sup>88</sup> Commission of the European Communities 'DG Internal Market and Services working paper: First Evaluation of Directive 96/9/EC on the legal protection of databases' (12 December 2005) <[http://ec.europa.eu/internal\\_market/copyright/docs/databases/evaluation\\_report\\_en.pdf](http://ec.europa.eu/internal_market/copyright/docs/databases/evaluation_report_en.pdf)> (Evaluation Report) (accessed 11 October 2006).

<sup>89</sup> *ibid* 14.

<sup>90</sup> *Magill* (n 87) paras 48-58.

<sup>91</sup> Cases C-7/97 *Oscar Bronner GmbH & Co v Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co KG* [1998] ECR I-7791 and C-418/01 *IMS Health GmbH & Co OHG v NDC Health GmbH & Co KG* [2004] ECR I-5039.



distribution system was not indispensable for entering a secondary market, as Bronner actually had a share of 3.6 to 6 per cent in the Austrian market for daily newspapers. It is true that access to Mediaprint's distribution channels would have been more efficient, but it is indispensability and not lack of efficiency that obliges a dominant undertaking to allow access to its distribution channels.<sup>92</sup> The ruling in *IMS Health* was music to the ears of copyright owners, as it affirmed that the findings of *Oscar Bronner* apply to copyright and not just to distribution channels. NDC wanted a licence allowing it to use the copyright-protected 'brick structure' which IMS Health had devised for the collection and analysis of pharmaceutical product sales in Germany. By using this structure, NDC would have been able to provide a similar product. The ECJ held that IMS Health would be obliged to license its copyright only if it were indispensable for NDC to create a new product; furthermore, it stressed that a compulsory licence should be given only if NDC was going to offer a new product which would be different from, and not a mere duplicate of, the one offered by IMS Health.<sup>93</sup>

The *Magill/Oscar Bronner/IMS Health* line of cases has been disrupted by the recent Commission's decision in the *Microsoft* case, which was delivered only days before the ECJ's judgment in *IMS Health*.<sup>94</sup> One of the issues in *Microsoft* was the company's refusal to provide access to the information on the interface between its Windows OS and server software. The Commission found that this refusal constituted dominance abuse, even though it did not lead to the elimination of all competition in the secondary market for server software and therefore the second condition of *Magill* was not satisfied.<sup>95</sup> The *Microsoft* decision has expanded the scope of the exceptional circumstances doctrine; however, this expansion will not be confirmed until the CFI decides on the appeal launched by Microsoft against the Commission's decision. The decision is discussed in great detail throughout

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<sup>92</sup> In *Tiercé Ladbroke v Commission* the CFI also interpreted the 'exceptional circumstances' doctrine narrowly. It found that the refusal by the owner of rights in certain televised pictures of French horse races to allow retransmission in Ladbroke's betting shops did not amount to copyright abuse, as the refusal to license did not prevent Ladbroke from operating in the secondary market of horse race betting and also Ladbroke did not propose introducing a new product for which there was potential customer demand. T-504/93 *Tiercé Ladbroke v Commission* [1997] ECR II-923.

<sup>93</sup> For a detailed analysis of the *IMS Health*, see E Derclaye 'The *IMS Health* Decision and the Reconciliation of Copyright and Competition Law' (2004) 29 ELR 687 and C Stothers '*IMS Health* and its Implications for Compulsory Licensing in Europe' (2004) 26 EIPR 467.

<sup>94</sup> Case COMP/37.792 *Microsoft*, 24 March 2004.

<sup>95</sup> See relevant discussion in D Ridyard 'Compulsory Access Under EC Competition Law—a New Doctrine of "Convenient Facilities" and the Case for Price Regulation' (2004) 25 ECLR 669.

chapter 5 of the thesis; in particular, the decision's treatment of the exceptional circumstances doctrine is discussed in section 5 of that chapter.

For the time being, national courts are left to apply the unsettled 'exceptional circumstances' doctrine of *Magill* to refusals of dominant *sui generis* right holders to licence their rights; thus software producers who market software containing components protected by the database right have a good chance of getting away with refusing to licence their right or insisting on licensing it at unfavourable terms. In fact, such software producers can continue to exclude competitors from their markets for a very lengthy period of time, as regularly updated databases qualify for renewed terms of protection. For instance, a substantially altered interface of a new version of a computer program will qualify for a new 15-year term of protection.<sup>96</sup> The absence of compulsory licensing provisions combined with the possibility of perpetually renewed terms of protection is a mixture which can stifle competition in software markets.

## 7 CONCLUSION

The objective of the Database Directive is to encourage investment in database products and protect them from unauthorised copying; legislators envisaged the Directive as a legal instrument which would help database producers in the internal market become competitive on an international level. Undeniably, the Directive was not meant to create a second tier of legal protection for computer programs. And yet, owing to the Directive's failure to explicitly state that all software and software components remain outside its scope, this is exactly what happened.

It has been demonstrated in this chapter that computer programs and their individual components rarely meet the copyright originality criterion of the Database Directive. Further, a computer program might be a database but one which rarely qualifies for *sui generis* database right protection, as it seldom meets the *Svenska* requirement that substantial investment was made towards the collection, verification or arrangement of its content; but software components, from data compilations to interfaces, are often protected by the database right.

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<sup>96</sup> Database Directive art 10(3).

Therein lies the problem. Software developers are very keen to use the database right so as to protect against unauthorised copying parts of their computer programs which are not protected under the Software Directive. And of course they are more than happy to invoke their database right to protest against decompilation of their program's interfaces, so as to keep other developers from releasing competing software or from entering secondary markets (for instance they can stop software manufacturers from creating applications compatible with their own operating system, thus keep the secondary applications market to themselves). In fact, they can prevent decompilation or unauthorised copying of database right protected components within their software by applying a TPM which will of course will be protected under the provisions of the Information Society Directive—why rely on the Software Directive to protect a TPM when you can invoke the much more protective regime of the Information Society Directive? And if competitors complain that the refusal of a dominant undertaking to allow decompilation of its software's interfaces prevents the emergence of a new product, all they can do is rely on *IMS Health*: only if 'exceptional circumstances' are present will they be able to demand from the dominant undertaking a compulsory database right license allowing them to decompile the interfaces in question.

The above scenario has not been played out in courts yet; nevertheless, the Database Directive can easily give rise to such cases. *Svenska* may have restricted the scope of databases which qualify for the *sui generis* database right by stating that creating data does not count as investment in collecting data, but the scope of the database right is still broad enough to encompass computer program components.

The solution to this problem is obvious: the Database Directive must be altered so that its definition of databases covers only compilations whose content elements are individually accessible to humans; this way, any compilation accessible to parts of a computer program which has been built so as to ensure that the program in question functions properly will not be protected by either copyright or the *sui generis* database right envisaged within the Directive.<sup>97</sup> An amendment of the database definition would firmly place interfaces,

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<sup>97</sup> Davison suggests the adoption of an international agreement stipulating that all countries will provide for a *sui generis* database right in their national laws; such an agreement, according to Davison, should stipulate that 'the purpose of a database is to permit retrieval and direct perception of the contents of the database by human beings' and thus ensure that data compilations found within computer programs are outside the scope of the scope of the *sui generis* right. Davison 2003 (n 13) 273.

compression and look-up tables, menu command hierarchies and data compilations outside the scope of Database Directive. Unfortunately, Commission's 2005 report on the evaluation of the Database Directive does not deal with this issue at all.

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## 4 ARTICLE 81 EC TREATY AND SOFTWARE LICENCES

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### 1 INTRODUCTION

This chapter examines the relationship between software licences and Article 81 EC Treaty. It aims to give an overview of software licensing terms which fall foul of Article 81: this is achieved through discussing the Community Regulations which are applicable in the field of software licensing. Entering into agreements which do not violate Article 81 is important to licensing parties, as breach of Article 81(1) jeopardises the validity of the agreement and may also result in a fine from national competition authorities (NCAs) or the Commission. However, respecting Article 81 while engaging in software licensing activities is also important on another level: by ensuring that licences do not distort competition within the common market, the European software industry as a whole benefits.

The chapter first looks at the friction and the boundaries between copyright and competition; it is a friction always lurking in the background when computer programs are licensed. Afterwards, a very brief overview of software licensing types is given. Next, the chapter focuses on the 2004 Regulation on technology transfer agreements. It is a piece of legislation of great importance for software copyright licences and therefore it is discussed extensively. The chapter then offers a brief overview of the Regulation on vertical agreements. Software distribution licences—which are closely linked to copyright licences—are governed by that Regulation. The final part of this chapter summarises Regulation 1/2003, which modernised the enforcement of Articles 81 and 82 EC Treaty, and speculates on the Regulation's effect on software licensing practices and case law.<sup>1</sup>

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<sup>1</sup> Council Regulation (EC) 1/2003 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty [2003] OJ L1/1.



## 2 INTERPLAY BETWEEN SOFTWARE COPYRIGHT AND COMPETITION LAW

When does a software licensing agreement fall for consideration under EC competition law? According to the European Court of Justice (ECJ) and the Commission, terms of copyright licences may be examined under the light of Articles 81 and 82 EC Treaty only if they relate to the exercise—and not the existence—of copyright.

The existence/exercise dichotomy was established by the ECJ in an effort to use competition rules and Article 28 EC Treaty—which permits restrictions to the free movement of goods intended to protect industrial property, provided that these restrictions do not impede trade between Member States—to prevent national intellectual property rights from fragmenting the common market along national borders. This goal was particularly important in the days when intellectual property rights were not harmonised and could obstruct the free circulation of goods within the internal market.<sup>2</sup>

According to ECJ case law, any use of intellectual property rights by their proprietors or their licensees is immune from Articles 81, 82 and 28, provided that the use relates to the existence and not the exercise of the right. The distinction between existence and exercise was first drawn in *Consten Grundig*<sup>3</sup> and in *Sirena v Eda*.<sup>4</sup> In both cases, the ECJ held that the exercise of trademarks may infringe competition law. The doctrine was confirmed in the context of copyright in *Deutsche Grammophon*.<sup>5</sup>

Subsequent decisions offered examples of acts which relate to the existence and acts which relate to the exercise of copyright. In the two *Coditel* cases<sup>6</sup> it was deemed that requiring fees for any showing of a film, including TV broadcasts, is part of the existence of the copyright in the film and therefore not subject to Articles 81 and 82. And in *Magill*<sup>7</sup> the ECJ held that the refusal of a dominant broadcasting company to license its copyright in TV listings is an exercise of copyright which could in exceptional circumstances constitute abuse of that

<sup>2</sup> For an overview of how the ECJ has used Articles 81 and 82 so as to prevent intellectual property rights from partitioning the internal market see SD Anderman *EC Competition Law and Intellectual Property rights: the Regulation of Innovation* (Clarendon Press Oxford 1998) 8-24.

<sup>3</sup> Cases 56 & 58/64 *Consten & Grundig v Commission* [1966] ECR 299.

<sup>4</sup> Case 40/70 *Sirena Srl v Eda Srl and Others* [1971] ECR 69.

<sup>5</sup> Case 78/70 *Deutsche Grammophon v Metro* [1971] ECR 487.

<sup>6</sup> Case 62/79 *Coditel v Cine Vog Films* [1980] ECR 881 and Case 262/81 *Coditel v Cine Vog Films* [1982] ECR 3381.

<sup>7</sup> Cases C-241 & 242/91 *RTE & ITP v Commission* [1995] ECR I-743.

dominance; thus the ECJ repeated in *Magill* and in the context of copyright what it had already stated in *Volvo*,<sup>8</sup> where it was found that the refusal to license registered design rights could in exceptional circumstances constitute abuse. Two subsequent decisions by the Court of First Instance and the ECJ, *Tiercé Ladbroke* and *Oscar Bronner*, illustrated that the exceptional circumstances present in *Magill* will only rarely be found to exist,<sup>9</sup> whereas the recent judgment on the *IMS Health* case reiterated the findings of *Magill*.<sup>10</sup>

Even though the existence/exercise doctrine was cited in many of its decisions, the ECJ failed to give guidelines as to where existence ends and exercise begins. The dichotomy has been condemned as a sophistry attempting to conciliate provisions on the free movement of goods and competition on the one hand with article 295 EC Treaty on the other.<sup>11</sup> According to article 295, 'the Treaty shall in no way prejudice the rules in Member States governing the system of property ownership' and, so long as intellectual property ownership remained in the sphere of national competence, the Court had to tread lightly when trying to restrict the use of intellectual property rights; therefore it chose to draw this artificial line between existence and exercise, though in truth a right manifests itself only through its exercise and the two notions of existence and exercise are not easy to disengage.

In 1989 the Commission confirmed the Court's doctrine. In its communication containing the proposal for what later became the Directive for the legal protection of computer programs, the Commission stated that the existence/exercise distinction applies to copyright protecting software. It said that software licensing terms which attempt to extend the rights of the licensor or restrict the usage rights of the licensee beyond what the Directive will provide will be subject to competition law assessment.<sup>12</sup>

<sup>8</sup> Case 283/87 *Volvo v Veng* [1988] ECR 6211.

<sup>9</sup> Cases T-504/93 *Tiercé Ladbroke v Commission* [1997] ECR II-923 and C-7/97 *Oscar Bronner GmbH & Co v Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co KG* [1998] ECRI-7791.

<sup>10</sup> Case C-418/01 *IMS Health GmbH & Co OHG v NDC Health GmbH & Co KG* [2004] 4 CMLR 28. This case along with *Magill*, *Volvo*, *Tiercé Ladbroke* and *Oscar Bronner* are discussed in much greater detail in section 5 of chapter 5 in the context of compulsory licensing.

<sup>11</sup> WR Cornish and D Llewelyn *Intellectual Property: Patents, Copyright, Trademarks and Allied Rights* (5<sup>th</sup> edn Sweet & Maxwell London 2003) 742. See also V Korah *Technology Transfer Agreements and the EC Competition Rules* (Clarendon Press Oxford 1996) 35-36 and I Forrester 'Software Licensing in the Light of Current EC Competition Law Considerations' (1992) 13 ECLR 5, 10.

<sup>12</sup> Proposal for a Council Directive on the legal protection of computer programs COM(88)816 final [1989] OJ C91/4, 16.

In the years that followed this communication by the Commission, software copyright was harmonised by virtue of the Software Directive and, to a lesser extent, the Information Society Directive.<sup>13</sup> This level of harmonisation makes the distinction between existence and exercise of copyright protecting computer programs more straightforward, as the two Directives define the existence of software copyright. For example, it is now clear that licensing terms relating to the exclusive right of the copyright owner to reproduce his or her software or embed in it digital rights information are terms relating to the existence of the right, since they are envisaged in the software and information society Directives respectively; such terms cannot be declared unlawful by virtue of Articles 81 or 82, even if in truth they are anti-competitive. On the other hand, designated machine clauses or grant-back clauses are terms not mentioned in the Directives and thus subject to competition law prohibition.

Until the Commission decided to include software copyright licences within the ambit of the 2004 TTBER, there was a high degree of uncertainty as to which licensing terms breached Article 81. The Commission had expressed the view that it was likely to treat copyright and patent licences in the same way;<sup>14</sup> and many commentators suggested that TTBER 240/96 and its predecessors, the two separate block exemptions on patent and know-how licences,<sup>15</sup> applied by analogy or at least provided guidance as to which software licensing terms distorted competition within the internal market.<sup>16</sup> Nonetheless, the lack of Community legislation and ECJ case law on the matter left the software industry and its customers in the dark and free to agree licences detrimental to competition.

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<sup>13</sup> Directive (EC) 91/250 on the legal protection of computer programs [1991] OJ L122/42 (Software Directive) and Directive (EC) 2001/29 on the harmonisation of certain aspects of copyright and related rights in the information society [2001] OJ L167/10 (Information Society Directive).

<sup>14</sup> Twelfth Report on Competition Policy para 88.

<sup>15</sup> Commission Regulation (EEC) 2349/84 on patent licensing agreements [1984] OJ L219/15 and Commission Regulation (EEC) 556/89 on know-how licensing agreements [1989] OJ L395/1.

<sup>16</sup> J Darbyshire 'Computer Programs and Competition Policy: A Block Exemption for Software Licensing?' (1994) 16 EIPR 374, 376 and Forrester (n 11) 13. Commission Regulation (EC) 240/96 was extensively analysed in Korah 1996 (n 11).

### 3 OVERVIEW OF SOFTWARE LICENCE TYPES

There are countless types of software licensing agreements. The type of a licence can vary depending on who the licensee is: a private user, an OEM (original equipment manufacturer, ie a company which assembles a PC and installs on it certain software packages before selling the PC to end users), a company which uses a particular program to produce a good or a service etc. Licence types are also determined on the basis of the process followed to produce the computer program: the program may be available at a software retailer's shop or it may have been made specifically tailored to a specific customer's needs. Below follows a list of some types of software licences which are common.<sup>17</sup>

#### *Licence for standard off-the-shelf software*

In this type of licence, the consumer buys a copy of a standard computer program (eg Microsoft Windows or Microsoft Office) from a software retailer or downloads it through the internet (eg Apple's QuickTime media player). In both cases, the consumer does not actually 'buy' the software—he simply acquires a copyright licence allowing him to use the program. When consumers buy a standard computer program from a software retailer, it is embodied in a CD which is typically shrink-wrapped (hence the term 'shrink-wrap licence'). By opening the packaging the consumer is considered to accept the licence terms dictated by the software owner. However, the legal effect of such a consent is somewhat ambiguous; therefore, it is common that the consumer has to accept the licence on his computer screen in the process of installing the program on his PC.

#### *Licence for bespoke software*

A computer program is written specifically for a particular customer and is tailored to his or her needs.

#### *Licence for value-added software*

The software developer modifies an existing off-the-shelf program and proceeds to license it to third parties.

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<sup>17</sup> A well-known book which offers an overview of different types of software licences as well as precedents is M Rennie's *Computer Contracts* (Gaunt 1994).



*Open source licence*

This type of copyright licence is fundamentally different from all types mentioned above, as it relates to non-proprietary computer programs. Under its terms, licensees are given access to the computer program's source and object code. They can reproduce, modify and distribute copies of the computer program to others, provided they pass on the same licensing terms under which they acquired their own copy of the program. The most commonly used version of open source licences is the GNU General Public License (GPL). This additionally requires that licensors cannot charge any royalty fees. Also, it obliges licensees to further license, under a GPL and free of charge, modified versions of the computer program or its derivatives to any interested party.<sup>18</sup> However, a fee may be charged for the physical medium carrying the software, for maintenance services and for user manuals. The Linux operating system (OS) is the best known example of software distributed under an a GPL.

*Distribution licence*

This is not a copyright licence. Distribution licences may be awarded to OEMs, software retailers or hardware retailers. All of these do not have the right to use the program; they simply pass it on to the end users. OEMs (who are the most common distribution channel for computer programs) preinstall various computer programs on the PCs they manufacture and then sell proceed to sell these PC to end users. The end user acquires copyright licences to the computer programs directly from the software developers.

## 4 LICENCES AND THE TECHNOLOGY TRANSFER BLOCK EXEMPTION

### 4.1 Introduction

On 7 April 2004 a new technology transfer block exemption Regulation (TTBER), which replaced block exemption 240/96 and which is accompanied by Guidelines, was adopted.<sup>19</sup>

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<sup>18</sup> The GPL was written by Richard Stallman. Its text is available at <<http://www.opensource.org/licenses/gpl-license.php>> (accessed 6 May 2007). GNU is a recursive acronym for 'GNU's Not Unix', a project by the Free Source Foundation aimed at creating an open source alternative to the proprietary UNIX OS.

<sup>19</sup> Commission Regulation (EC) 772/2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements [2004] OJ L123/11 (TTBER) and Commission Notice – Guidelines on the application of the EC Treaty to technology transfer agreements [2004] OJ C101/2. The new Regulation replaces Commission Regulation (EC) 240/96 [1996] OJ L031/2.



On the same day, the Commission issued a press release in which it declared that the new rules 'reduce bureaucracy and increase legal certainty for companies as more licensing agreements will benefit from a regulatory safe harbour, saving many agreements from individual scrutiny. They will also effectively contribute to the dissemination of technology and know how within the European Union'.<sup>20</sup> Section 4 of this chapter examines whether the 2004 TTBER does indeed increase legal certainty and foster licensing within the internal market as far as software copyright is concerned.

One of the most important changes introduced by the block exemption is the inclusion of software copyright licences in its scope. This inclusion has been advocated repeatedly by industry players and academics alike, who believed that a block exemption dealing with software copyright agreements would provide certainty and guidance as to which licensing terms infringe Article 81(1) EC Treaty and which qualify for an exemption under 81(3) EC Treaty.

Furthermore, the 2004 block exemption entered into force on 1 May 2004, which was a day of paramount importance for EC competition law: on that day Regulation 1/2003 also came into force, introducing the much publicised 'modernisation' of EC competition law enforcement.<sup>21</sup> Under the new regime, the Commission has lost its monopoly on granting exemptions under Article 81(3); it now shares this task with NCAs and courts. Also, undertakings can no longer notify their agreements to the Commission to seek an individual exemption on the basis of Article 81(3); they must ensure themselves that agreements do not infringe Article 81(1) or are exempt under Article 81(3).

Does the 2004 technology transfer block exemption offer sufficient legal certainty and guidance to undertakings, NCAs and national courts as to the application of Article 81 to software licences? The analysis that follows attempts to answer this question.

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<sup>20</sup> Commission *Commission adopts new safe harbour for licensing of patents, know-how and software copyright* Press Release IP/04/470 <<http://europa.eu.int>> (accessed 5 August 2004).

<sup>21</sup> Council Regulation (EC) 1/2003 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty [2003] OJ L1/1.

## 4.2 Function of the TTBER and its Guidelines

The 2004 TTBER came into force on 1 May 2004. It was accompanied by Guidelines, which explain how the Regulation should be interpreted and how Article 81 will apply to licensing agreements not covered by the Regulation. The process which led to the adoption of the new block exemption started with a public consultation on the Commission's evaluation report of the previous block exemption on technology transfer agreements.<sup>22</sup>

The evaluation report, which was published in 2001, highlighted the shortcomings of the block exemption—too legalistic and narrow in scope—and expressed the intention to replace it with a new, economics-based and broader in scope Regulation. Those who participated in the consultation applauded the Commission's intentions and in October 2003 the Commission issued proposals for a new Regulation and accompanying Guidelines.<sup>23</sup> A new round of consultation began, resulting in about 70 submissions from, among others, industry players and associations, law societies, law firms and academics. Most respondents said that the inclusion of software licences into the ambit of the proposed Regulation was a positive step, but also pointed out that the proposed provisions on market share thresholds—which are analysed in section 4.3.3 of this chapter—would be difficult for companies to enforce. The Commission eventually adopted the final version of the block exemption and Guidelines in April 2004.

The function of the block exemption—and also the function of the old Regulation 240/96 it replaced—is to apply Article 81(3) EC to technology transfer agreements. Article 81(1) prohibits undertakings from entering into agreements which have as their object or effect the prevention, restriction or distortion of competition within the common market; whereas Article 81(3) exempts such agreements if they improve the production or distribution of goods or if they promote technical or economic progress, provided they do not impose on the undertakings involved unnecessary restrictions nor enable the undertakings to eliminate competition in the relevant product market. The Commission believes that licensing agreements, though capable of having anti-competitive effects, often also have pro-

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<sup>22</sup> Commission evaluation report on the transfer of technology transfer block exemption Regulation No 240/96: technology transfer agreements under Article 81 (12 December 2001) <[http://europa.eu.int/comm/competition/antitrust/technology\\_transfer/en.pdf](http://europa.eu.int/comm/competition/antitrust/technology_transfer/en.pdf)> (accessed 5 August 2004).

<sup>23</sup> Draft Commission Regulation on the application of Article 81(3) of the Treaty to categories of technology transfer agreements and draft accompanying Guidelines [2003] OJ C235/4.

competitive effects: They promote innovation because they allow innovators to reap the benefits of their research and labour; and they promote dissemination of technical knowledge, which leads to making new or more sophisticated products. In fact, the Commission believes that the vast majority of licensing agreements are pro-competitive.<sup>24</sup>

The Regulation provides a safe harbour for technology transfer agreements which fall within its scope. Agreements which meet the block exemption's market threshold criteria and do not include black-listed or excluded terms are deemed legal for the purposes of Article 81(1). According to the Guidelines, agreements which do not come under the Regulation's scope—for instance because the market threshold criteria are not met—are not presumed unlawful but are subject to individual assessment;<sup>25</sup> however, the Guidelines also state that if agreements containing any of the black-listed terms of article 4 of the TTBER come under review they will most probably be found anti-competitive and ineligible for exemption under Article 81(3).<sup>26</sup>

The function of the Guidelines accompanying the TTBER is twofold: sections I-III interpret the Regulation, thus aiding undertakings which want to enter technology transfer agreements to structure them in such a way that they are covered by the Regulation; and section IV aims to help parties whose agreements are not covered by the scope of the block exemption examine whether their agreements are legal for the purposes of Article 81.

Section IV of the Guidelines begins by offering a secondary safe harbour to agreements which do not contain any hardcore terms but are not covered by the block exemption's safe harbour: according to Guideline 131, if there are at least four independent sources of technology which can substitute the licensed technology at a comparable cost to the user and which impose a real competitive constraint to the licensed technology, the agreement is unlikely to infringe Article 81. Agreements protected by this secondary safe harbour may be challenged at any time, as the Guidelines do not have a binding effect; nevertheless, paragraph 131 does provide some comfort to certain agreements not benefiting from the block exemption.

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<sup>24</sup> Guideline 17.

<sup>25</sup> Guideline 131.

<sup>26</sup> Guidelines 75 and 130.

Section IV proceeds to analyse how Article 81 will apply to restraints imposed by licensing agreements which are not covered by the block exemption—typically because the market share thresholds are exceeded—and which do not benefit from the independent sources criterion in Guideline 121. It explains which licensing clauses are likely to breach Article 81(1) and which are likely to fall under the exemption of Article 81(3). For example, obligations on licensees to pay minimum royalties or not to sub-license will not breach Article 81(1). On the other hand, the vast majority of clauses examined—royalty provisions, output and field of use restrictions, tying etc—may or may not be anti-competitive depending on the factors listed in Guideline 132: the nature of the agreement, the market power of the parties, entry barriers etc. The Guidelines explain how these factors determine the effect of licensing terms on competition in the relevant markets.

## 4.3 Changes introduced by the TTBER and its Guidelines

### 4.3.1 The economics-based approach

The Regulation differs significantly from the one it replaced. Not only is its scope expanded to cover software licences; it also claims it introduces an economics-based rather than legalistic approach to technology transfer agreements.<sup>27</sup>

What constitutes an economic-based approach? And is the Commission justified to declare that the 2004 block exemption and Guidelines subject technology transfer agreements to an economic rather than legalistic analysis with regard to their effects on competition?<sup>28</sup>

In the United States, the Chicago school of economists has had a great impact on the way agreements between undertakings are subjected to economic analysis, ie the way their pro- and anti-competitive effects are balanced. According to the Chicago school, the main concern of competition law is consumer welfare. Therefore, vertical agreements (those

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<sup>27</sup> TTBER recital 4.

<sup>28</sup> The Commission stressed the economic approach of the TTBER and accompanying Guidelines in its 7 April 2004 press release (n 20). The view that the TTBER is indeed more economics-based and less legalistic is defended in M Hansen and O Shah 'The New Technology Transfer Regime - Out of the Straightjacket into the Safe Harbour' (2004) 25 ECLR 465.

between parties operating at different levels of trade or industry, eg between distributors and retailers) are treated much more leniently than horizontal agreements (those between parties operating at the same level of trade and industry, ie between actual or potential competitors). Vertical agreements typically result in more products reaching the market and thus encourage inter-brand competition; therefore, US legal authorities rarely question the effects of such agreements on competition. On the other hand, horizontal agreements are concluded between actual or potential competitors and often have as their objective that parties to the agreement raise prices or decrease output collectively.<sup>29</sup>

Furthermore, when US courts and anti-trust authorities apply section 1 of the Sherman Act<sup>30</sup>—which is the equivalent to Article 81 EC Treaty and prohibits every contract in restraint of trade or commerce—to agreements between undertakings, they also apply the rule of reason doctrine. The doctrine was invented by American courts to compensate for the lack of an exception to section 1 of the Sherman Act which would be the equivalent of Article 81(3) EC Treaty. According to the doctrine, only contracts which impose unreasonable restraints on trade or commerce should be prohibited—in other words, the pro-competitive effects of an agreement must be balanced with its anti-competitive effects.

In contrast to US law, EU competition law is concerned not only with consumer welfare but also with protecting competitors.<sup>31</sup> Furthermore, the Commission dismisses the rule of reason doctrine and the ECJ refrains from using this terminology, because they both feel the need to judge agreements harsher than US legal authorities would. This is because Articles 81 and 82 are aimed not only at protecting competition in the common market but also at promoting the integration of national markets; an agreement which is found not to be anti-

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<sup>29</sup> For an overview of how US law deals with technology licences and a comparison between the EU and US competition policies towards such agreements see Korah 1996 (n 11) 14-30. See also, by the same author, *An introductory guide to EC competition law and practice* (8<sup>th</sup> edn Hart Oxford 2004) 315-316.

<sup>30</sup> 15 USC 1.

<sup>31</sup> In recent times the Commission has taken initiatives to highlight that consumer welfare plays an important role in EC competition law enforcement. For instance, each NCA now has a consumer correspondent who liaises with consumer organisations, whereas a 2005 Commission Green Paper identified obstacles to an efficient system for consumers bringing damages claims for infringement of EC antitrust law. See N Kroes 'Competition Policy and Consumers' (speech delivered to the General Assembly of Bureau Européen des Unions de Consommateurs, Brussels 16 November 2006) <[http://ec.europa.eu/comm/competition/speeches/index\\_2006.html](http://ec.europa.eu/comm/competition/speeches/index_2006.html)> (accessed 2 April 2007). Green Paper 'Damages actions for breach of the EC antitrust rules' COM(2005) 672 final.



competitive in the US might well be considered anti-competitive in the EU because it partitions the common market.<sup>32</sup>

Until 1999, block exemptions implementing Article 81(3) for certain categories of agreements—eg exclusive distribution agreements, research and development agreements etc—reflected the reluctance of the Commission and the ECJ to engage in economic analysis when considering whether agreements distorted competition in the internal market.<sup>33</sup> Rather than being economics-based, they were formalistic: agreements belonging to one of the exempted categories would be exempted from Article 81(1) even if they contained clauses mentioned in the block exemption's white list (white-listed clauses were considered not to restrict competition); and agreements would not be exempted if they contained clauses stated in the block exemption's black list. Economic analysis did not seem to be on the Commission's agenda when it drafted these Regulations.

In 1999 these block exemptions started being replaced by a new wave of regulations—the Regulation on vertical agreements and concerted practices, the two Regulations on horizontal co-operation agreements<sup>34</sup> and of course the 2004 TTBER—which share similar structure and scope criteria. These block exemptions are more economics-based and less legalistic than the ones they replaced. They no longer have black, white and grey lists of licensing terms; instead, their scopes are defined by market share thresholds, black lists of licensing terms and lists of clauses which are not covered per se by the block exemptions but which do not result to the exclusion of the rest of the agreement from the safe harbour of the block exemptions.

The 2004 block exemption's feature which probably justifies most convincingly its assertion of being economics-based is that it distinguishes agreements between competitors from agreements between non-competitors: the latter type of agreements is treated more leniently, a choice influenced by the Chicago school's view that vertical agreements are not

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<sup>32</sup> For an overview of the rule of reason doctrine in the US and the attitudes of the Commission and the ECJ towards it see R Lane *EC Competition Law* (Longman Harlow 2000) 80-81.

<sup>33</sup> Examples of this type of block exemptions are the outgoing Commission Regulation (EC) 240/96, Commission Regulation (EEC) 1983/83 on exclusive distribution agreements [1983] OJ L173/1 and Commission Regulation (EEC) 418/85 on research and development agreements [1985] OJ L21/8.

<sup>34</sup> Commission Regulation (EC) 2790/1999 on vertical agreements and concerted practices [1999] OJ L336/21, Commission Regulation (EC) 2658/2000 on specialisation agreements [2000] OJ L304/3 and Commission Regulation (EC) 2659/2000 on categories of research and development agreements OJ [2000] L304/7.

detrimental to competition. Furthermore, the Guidelines create a secondary harbour based on the independent sources criterion; and they also advise that agreements not covered by the Regulation's scope or the Guidelines' secondary safe harbour should be appraised on the basis of their effect on the market.<sup>35</sup>

### 4.3.2 Types of software licences covered

The TTBER covers licences or assignments of patents, know-how or software copyright, provided these agreements are entered into by two parties—multiparty agreements are not covered—for the purpose of manufacturing or providing contract products.<sup>36</sup> Assignments are covered if the assigning party bears part of the risk associated with the exploitation of the licensed technology: for instance, if the calculation of the royalties the assignor receives is based on the revenue created by the licensed technology. Agreements covered by the block exemption may also include terms relating to the sale and purchase of products or to the licensing or assignment of other intellectual property rights, so long as these terms are ancillary to the technology transfer agreement and do not constitute its primary object.

In view of article 2(1), the block exemption will apply to software licensing agreements whose purpose is the manufacture or provision of products. According to article 1(1)(e), the term 'products' includes both goods and services, and these may be intermediary (ie products to be marketed for production) or final (ie products to be marketed for consumption). The resulting products must incorporate or be produced with the licensed software.<sup>37</sup> For example, the licensed computer program could be used for the development of another piece of software or for the production of silicon chips, cars, computer hardware, electrical equipment etc, or for the provision of an on-line travel booking service. So which types of software licences will benefit from the block exemption and be exempt from Article 81?

A major category of software copyright licences covered by the 2004 regulation is value-added licences. These licences allow licensees to modify programs so as to create different

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<sup>35</sup> Guidelines 132-235 explain how individual clauses (eg on tying arrangements, field of use restrictions, non-compete obligations etc) should be appraised.

<sup>36</sup> TTBER arts 1(1)(b) and 2(1).

<sup>37</sup> Guideline 41 states that licensing agreements are covered by the block exemption if their purpose is the manufacturing of products which incorporate or which are produced with the licensed technology.

versions of them, which they will then keep for their own use, license to third parties, or even license back to the original licensors. The resulting product might be the same program translated into a different national language, or an adaptation with different features or add-ons. The licensed software may also be used for creating a completely a new computer program: for instance, the licensee could create an application compatible with the licensed OS.

The 2004 block exemption also covers a certain type of software distribution licences. Under such licences, the distributors duplicate the licensed computer program before selling the resulting copies to third parties. Distributors have a restricted copyright licence which only allows them to duplicate the program—they have no other user rights. The block exemption brings such distribution licences under its ambit,<sup>38</sup> though it is stated in the preamble that any terms in the licence which relate to the downstream trade—eg terms requiring the licensee to set up a particular distribution system or to impose certain obligations on resellers—will not be covered and should comply with Commission Regulation 2790/1999 on vertical restraints.<sup>39</sup>

On the other hand, the 2004 Regulation does not cover end-user licences, which include shrink-wrap, click-wrap and bespoke licences; under these, licensees can use the software in a computer and make a back-up copy, but are not allowed to adapt it, create derivative products from it, or make and distribute duplicates. These licences do not have as their object the manufacture of goods or services and are therefore outside the Regulation's scope.

Software developers were particularly keen for the new regulation to cover subcontracting licences; the 2004 technology transfer block exemption grants their wish only partially. Subcontracting is a very common practice for software houses: they often license a computer program to a subcontractor who will further develop it and then grant back—license or assign—the copyright to the resulting product exclusively to the contractor. According to the Guidelines, the Regulation covers subcontracting, provided that the licence identifies a contract product which will result from the subcontractor's work and which can be commercially exploited.<sup>40</sup> If the purpose of the licence is the improvement of a computer

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<sup>38</sup> The Commission's intention to include distribution licences into the scope of the new Regulation was expressed in the evaluation report on Regulation (EC) 240/96 (n 22) at para 115.

<sup>39</sup> TTBER recital 19.

<sup>40</sup> Guidelines 44-45.

program which will then be further improved by the contractor before it becomes a final product, or if the licensed software is used by the subcontractor as a research tool in the course of developing another product, the block exemption will not apply: both the Guidelines and Recital 7 to the Regulation make it clear that the latter does not cover agreements whose primary objective is research and development.

Given that the contract product resulting from a technology transfer agreement may be a service rather than a good, any agreement where the licensee uses a computer program so as to provide services will be exempted by virtue of the block exemption: an accountancy firm using a piece of software for offering accounting services to its clients, a law firm using Microsoft Word for providing legal services to its clients, an on-line auction website using a program to create and maintain its webpages – presumably software licences signed by all these companies will be covered by the 2004 regulation, provided that the market share thresholds are not exceeded. It remains to be seen if NCAs and the Commission will allow a broad interpretation of what constitutes a service for the purposes of article 1(1)(e) of the TTBER, but there is the possibility that numerous companies which use software in the course of their business will enjoy a new-found legal certainty as to the competitive credentials of their licensing agreements.

Even though the above analysis in this section makes evident that open source licences—subject to the TTBER's described above—are covered by the TTBER, it is worth highlighting this fact here: open source licences whose purpose is the manufacture or provision of goods and services are covered by the Regulation. In fact, open source software is often embedded in products or used for developing products, so a plethora of such licences benefits from the Regulation's scope.

Last but not least, the 2004 block exemption does not cover agreements whose primary object is the licensing of an electronic database which is protected either by copyright or by the *sui generis* database right.<sup>41</sup> Thus, a plethora of licensing transactions between proprietors of commercial databases – such as legal or scientific databases used by law firms,

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<sup>41</sup> Directive (EC) 96/9 on the legal protection of databases [1996] OJ L77/20 gives copyright protection to the structure of a database, provided the latter is the author's own intellectual creation. The Directive also creates a *sui generis* right, which allows the maker of the database to prevent extraction and re-utilisation of its contents.

hospitals or biology labs – and their clients unfortunately remains outside the scope of the Regulation.

### 4.3.3 Thresholds

For agreements to benefit from the draft block exemption, the parties involved must satisfy its threshold criteria. If the licensing parties are competing undertakings, their combined market share in the relevant technology and product market must not exceed 20 per cent.<sup>42</sup> According to article 1(1)(j), ‘competing undertakings’ are those who are actual competitors in the relevant technology market or those who are actual or potential competitors in the relevant product market. The proposal is more inclusive as far as agreements between non-competitors are concerned: such agreements are covered provided that each undertaking’s share in the relevant technology and product market is smaller than 30 per cent.<sup>43</sup>

How should companies define the relevant product and technology markets? Article 1(1)(j) and Guideline 21 offer some guidance. The relevant technology market comprises technologies which the licensees consider interchangeable or substitutable for the licensed technology, owing to their characteristics, royalties and intended use; the method for defining the market is to identify the technologies to which licensees would switch if a small but permanent increase in the royalties occurred. The same rules apply to the definition of the relevant product market.

And how should market shares of the parties to the agreement be calculated? Article 8(1) of the TTBER stipulates that they should be determined on the basis of sales value data; and if such data are not available, shares should be calculated based on reliable market information, such as market share volumes.

Furthermore, article 3(3) provides that shares in the relevant technology market are defined on the basis of sales of products incorporating or produced with the licensed technology. In particular, the licensor’s share in the relevant technology market will be defined on the basis

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<sup>42</sup> TTBER art 3(1).

<sup>43</sup> TTBER art 3(2).



of the sales by the licensor and by all his or her licensees of products manufactured with or incorporating the licensed technology.<sup>44</sup>

It is questionable whether the adoption of threshold ceilings is the optimum way to introduce an economics-based approach towards technology transfer licences. The Regulation and the Guidelines dictate a market definition and share calculation system which will be difficult for undertakings and their legal advisors to follow – and when agreements are challenged, NCAs and national courts will also have problems implementing the new rules.

There will be difficulties in particular when the licensed technology is completely new, there are no sales data and future sales are hard to estimate. More importantly, if the licensed technology happens to signify a technological breakthrough which creates a new market, the licensor will initially have 100 per cent share in this market, which of course will decrease immediately once competitors launch similar products. In the context of software licensing, this would mean that the licence for a completely new type of software would not come under the TTBER's umbrella until competing computer programs emerge in the market.

Licensing a highly innovative technology may also result in the two parties being classified as competitors for the purposes of the Regulation, when in fact they are not. In a scenario where the licensee produces a technology competing with the highly innovative licensed technology, the two parties will in reality be non-competitors, because the licensed technology presents a breakthrough and renders the licensee's product obsolete. The Guidelines acknowledge this problem, but nevertheless state that the non-competitor status will be very hard to substantiate at the time of the conclusion of the agreement; therefore, the parties will be deemed competitors until it becomes apparent – presumably through sales records – that the licensee's technology has become obsolete.<sup>45</sup> This is unfortunate, because it means that an undertaking which produces an advanced piece of technology might be deterred from licensing it, or might license it outside the EU, because potential agreements would be subject to the stricter rules the Regulation envisages for agreements between competitors.

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<sup>44</sup> Guideline 70 clarifies art 3(3) of the TTBER.

<sup>45</sup> Guideline 33.

The thresholds were heavily criticised by the respondents who took part in the consultation process on the proposed Regulation and Guidelines. Business Software Alliance (BSA), the international body representing the interests of all major software producers, suggested that the Commission should raise or eliminate the thresholds, at least as far as new products in hi-tech markets are concerned.<sup>46</sup> Others, such as the American Bar Association, advocated that the block exemption should apply not only when the market threshold criteria are satisfied, but also when there are other, independently controlled, sources of technology which can be substituted for the licensed technology at a comparable cost to the user.<sup>47</sup> This way the block exemption would follow the example of the US Guidelines for the Licensing of Intellectual Property, which envisage such a rule.<sup>48</sup> The Commission's response to all this criticism was to preserve the threshold provisions in the block exemption which was eventually adopted, and to introduce in the Guidelines—as has already been discussed above—the independent sources criterion for agreements which are not covered by the block exemption. Thus, thresholds remained in place and many companies will not benefit from the block exemption because their market shares might initially be—or seem to be—larger than what article 3 of the of the TTBER stipulates.

#### 4.3.4 Disapplication or withdrawal of the block exemption

Apart from the difficulties posed by the threshold criteria, licensing parties will face the danger of their agreements ceasing to be covered by the block exemption if their market shares rise or if the Commission or NCAs decide to withdraw the benefit of the block exemption.<sup>49</sup>

<sup>46</sup> BSA's comments on the draft block exemption and Guidelines, available at <[http://europa.eu.int/comm/competition/antitrust/technology\\_transfer\\_2](http://europa.eu.int/comm/competition/antitrust/technology_transfer_2)>, at page 2 (accessed 5 August 2004).

<sup>47</sup> ABA's comments, available at <[http://europa.eu.int/comm/competition/antitrust/technology\\_transfer\\_2](http://europa.eu.int/comm/competition/antitrust/technology_transfer_2)>, at page 10 (accessed 5 August 2004). Valentine Korah shares ABA's view: see her 'Draft Block Exemption for Technology Transfer' (2004) 25(5) ECLR 247, 249.

<sup>48</sup> Section 4.3 of the US Antitrust Guidelines for the Licensing of Intellectual Property provides that, absent extraordinary circumstances, intellectual property licensing agreements will not be challenged if there are at least four more independently controlled technologies which are interchangeable with the licensed technology (6 April 1995, 4 Trade Reg. Rep. (CCH) par. 13,132).

<sup>49</sup> The draft Regulation also envisaged the possibility of disapplying or withdrawing the benefit of the block exemption; the relevant provisions were criticised in R. C Lind and P. Muysert, 'The European Commission's Draft Technology Transfer Block Exemption Regulation and Guidelines: A Significant Departure from Accepted Competition Policy Principles' (2003) 25(4) ECLR 181, 188-189.

Article 8(2) states that if market shares rise above 20 or 30 per cent – depending on whether the agreement was signed between competitors or non-competitors – an agreement that was covered at the time of its conclusion will be covered only for a further two years after the share rise takes place. Compared to the wording of article 8 in the draft Regulation, the new article 8 is somewhat kinder to licensing parties. The draft Regulation provided that the two-year grace period would apply only to undertakings which exceeded the thresholds by 5 per cent. If market shares would rise above 25 or 35 per cent, for competitors and non-competitors accordingly, the block exemption would continue to apply only for one further year.<sup>50</sup>

It could be argued that the duty of the licensing parties to re-evaluate their agreement is the inevitable corollary of using threshold criteria to define the scope of the block exemption. Nevertheless, the possibility of the Regulation no longer applying to an agreement so soon after its conclusion creates uncertainty for undertakings and essentially penalises technology licences which prove to be successful. As a result, software developers might not conclude the agreement in the first place, might choose to license their copyright outside the EC or might even be discouraged from developing and investing in new innovative computer programs.

Under the previous block exemption on technology transfer agreements, the Commission had the power to withdraw the benefit of the block exemption from agreements which satisfied the criteria of the Regulation, but nevertheless had effects incompatible with Article 81(3). Under the 2004 block exemption, NCAs also have this power in the case of agreements which do not satisfy the conditions of Article 81(3) in the territory of their member state.<sup>51</sup> This way the block exemption is aligned with the new regime of Community competition law enforcement, which was introduced with Regulation 1/2003.<sup>52</sup> Under the new regime, parties to an agreement no longer have the option to request an individual exemption from the Commission by invoking Article 81(3), whereas NCAs and courts of the Member States are able to apply Article 81(3) if an agreement is challenged before them or if they decide to initiate *ex officio* proceedings examining whether an agreement has anti-competitive effects.

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<sup>50</sup> Article 8(2) and (3) of the draft TTBER.

<sup>51</sup> The powers of the Commission and NCAs to withdraw the benefit of the Regulation from agreements are described in article 6.

<sup>52</sup> See note 21 above.

#### 4.3.5 Black-listed and excluded terms

Articles 4 and 5 of the draft Regulation contain a black list and a list of excluded restrictions respectively. Licensing agreements containing terms listed in article 4 ('hardcore restrictions') are not exempted by virtue of the Regulation; in fact, according to paragraph 75 of the Guidelines, should such agreements come under individual review by the Commission or by NCAs, they will be found to satisfy the conditions of Article 81(3) only in exceptional circumstances. Clauses listed in article 5 ('excluded restrictions') are outside the scope of the block exemption, but the rest of the agreement within which they are found will still be covered. Article 4—and to some extent article 5—adopts a much stricter approach towards clauses included in agreements between competitors.

##### *Hardcore restrictions*

The black list in article 4 is split in two parts: paragraph 1 applies to agreements between competitors and paragraph 2 to agreements between non-competitors. The former type of agreements pose a greater threat to competition compared to the latter; therefore, article 4 offers a better chance to agreements between non-competitors to fall under the umbrella of the block exemption. And for the sake of legal certainty, paragraph 3 provides that, if licensing parties are not competitors at the time of concluding the agreement but subsequently become competitors, their agreement will still be subject to the more lenient rules of paragraph 2, provided that it is not amended in a 'material way'. Even though neither the Regulation nor the Guidelines elaborate on what constitutes a material amendment of the agreement, the introduction of 4(3)—which did not appear in the draft Regulation—is a positive development.

Compared to the draft Regulation published in October 2003, the new Regulation contains a much more narrowly defined black list, particularly as far as agreements between competitors are concerned; this has been achieved by introducing many exceptions to the black-listed terms in article 4, thus increasing chances for technology transfer licences to be covered by the block exemption.

As far as agreements between competitors are concerned, article 4(1) is more permissive than its equivalent in the draft Regulation, primarily because it now allows many more licensing restrictions in non-reciprocal licences.<sup>53</sup> Typically for a block exemption on the application of Article 81, price fixing—which in this context<sup>54</sup> includes determining the exact, minimum, maximum or recommended price for products sold to third parties—is a hardcore restriction which takes the whole of the licence outside the Regulation's scope. But all other hardcore restrictions in 4(1)—output limitations, customer and market allocation, restriction of the licensee's ability to exploit his or her technology or carry out research and development—are acceptable in certain variations, most often when appearing in a non-reciprocal licence.

For agreements between undertakings which are not competitors, there is a shorter black list. Price fixing is considered anti-competitive, but determining a maximum or recommended sale price is not black-listed; territorial or customer restrictions on passive sales of the contract goods are not allowed, but quite a few exceptions to this rule are envisaged;<sup>55</sup> and, if the licensee is a retailer who belongs to a selective distribution system, the licensor cannot restrict the licensee's ability to sell to end-users, though he or she can prohibit the licensee from operating out of an unauthorised place of establishment.

An interesting question arising in the context of price fixing is whether the zero royalty requirement in GPLs takes them outside the safe harbour of the TTBER. By stating that licensees must receive no royalties when further licensing the computer program or its derivatives, GPLs are effectively setting a maximum price. In view of the TTBER, a GPL could fall outside the Regulation if the licensing parties are competitors. However, in most cases GPLs are covered by the TTBER. This is because a fee is often charged when a computer program is licensed under a GPL: even though the copyright licence itself is for free, the licensor typically bundles it together with a maintenance service, or charges for the physical medium carrying the program or for allowing users to download it via the internet. Additionally, it should be noted that GPLs do not impose a zero royalty requirement when

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<sup>53</sup> Guideline 78 defines as non-reciprocal any agreement in which only one party licenses or where, in the case of cross-licensing, the licensed technologies are not competing or cannot be used for the production of competing products.

<sup>54</sup> Guideline 79 explains what constitutes price fixing for the purposes of article 4(1)(a) of the TTBER.

<sup>55</sup> TTBER article 4(2)(b).



the licensed software is used for providing a service; such GPLs would certainly be covered by TTBER.<sup>56</sup>

The issue of horizontal price fixing regarding GPLs recently came before the US Court of Appeals in *Wallace v IBM*.<sup>57</sup> The case did not concern software copyright licensing for the purpose of producing a good or a service and therefore, had it been tried in the EU, the TTBER would not have applied. However, the court's findings affirm that an agreement amongst competitors to fix GPL royalties at zero does not breach competition rules. Wallace claimed that three software producers—IBM, Red Hat and Novell—had agreed to charge zero royalties for Linux (the well known open source OS), which they licensed under the GPL. According to Wallace, the purpose of this agreement was to exclude from the market anyone wishing to market a proprietary OS in direct competition to Linux; no proprietary OS, no matter how low its licensing fee, would have been able to challenge Linux's zero royalty. The court dismissed the argument. It noted that, in general, horizontal agreements setting maximum prices are beneficial to consumers (which is in line with the TTBER's view described above) and therefore subject to a rule of reason evaluation. In the case at hand he found that, even though copyright authors have the right to charge a licensing fee so as to recover their fixed costs, they are not obliged to. Open source software such as Linux is developed by authors who donate their time and, so long as that remains true, it would harm consumer welfare to force authors to charge for their software.

The Regulation's black list is good news for software licensors. Quite a few restrictions which often appear in software copyright licences are not black-listed and licensors can impose them knowing that these restrictions are presumed lawful and pro-competitive. Below are some examples:

#### *Customer and market allocation*

A software proprietor may want the licensee to modify the licensed program only for a particular group of customers; for example, the contract product could be a value-added statistical program specifically modified for hospitals. Article 4(1)(c)(i) provides that the obligation on the licensee to use the licensed technology so as to manufacture products only for one or more product markets is not a hardcore restriction if the licensing parties are

<sup>56</sup> M Välimäki 'Copyleft Licensing and EC Competition Law' (2006) 27 ECLR 130, 132.

<sup>57</sup> *Daniel Wallace v IBM Corp, Red Hat Inc and Novell Inc* 467 F 3d 1104 (7<sup>th</sup> Cir 2006). The case is also briefly discussed in chapter 5, section 4.1.

competitors; whereas restrictions on active sales in an agreement between non-competing undertakings are not mentioned at all in the black-listed terms of article 4(2) and are therefore not considered anti-competitive.

#### *Technical field of use restrictions*

It is common for software copyright holders to license a program with the stipulation that it can only be used in one technical field—for instance, it may be incorporated in mobile phones but not in computer hardware. Again, article 4(1)(c)(i) allows for technical field of use restrictions, whereas article 4(2) makes no reference to such restrictions.

#### *Own-use restrictions*

Under such a restriction, a car manufacturing company may modify a licensed program which it acquired through a value-added license and use it in the course of its business; for instance, it could modify a spread-sheet program for account-keeping purposes. The company may not license further the modified program or copies thereof. The block exemption provides that own-use restrictions, which the Guidelines call ‘captive use’ restrictions,<sup>58</sup> are covered by its scope whether the licence was agreed between competitors or non-competitors.<sup>59</sup>

#### **Excluded restrictions**

Article 5 lists terms which are severable from licensing agreements and which require individual assessment to establish whether they are anti- or pro-competitive. These include exclusive grant-back clauses for severable improvements to the licensed technology; non-challenge clauses; and, in the context of agreements between non-competitors, the restriction on the licensees’ ability to exploit their own technologies or the restriction on the ability of any of the parties to carry out research and development, unless this latter restriction is indispensable to prevent the disclosure of the licensed know-how to third parties. It should be noted here that, according to article 4(1)(d), restrictions on exploiting one’s own technology or on carrying out research and development would take the whole of the agreement out of the safe harbour of the block exemption, if the agreement was signed between competitors.

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<sup>58</sup> Guidelines 92 and 102.

<sup>59</sup> TTBER paragraphs 1(c)(vi) and 2(b)(iii) of article 4.

The exclusion of grant-back clauses for severable improvements in article 5 is bad news for software developers.<sup>60</sup> As it has already been discussed, software proprietors often conclude subcontracting licences, whose purpose is that the subcontractor/licensee further develops the computer program and then grants back (ie licenses or assigns) exclusively to the contractor/licensor any severable or non-severable improvements to the program. The Commission believes that exclusive grant-back clauses for severable improvements are not desirable, because they reduce the incentive of licensees to innovate: if they cannot freely license or otherwise exploit their improvements, why put a lot of effort in innovating? However, if contractors cannot stop licensees from exploiting the improved technology they will be inclined not to subcontract their software in the first place. BSA's plea for the Guidelines to provide that exclusive grant-back clauses in subcontracting licences will normally qualify for exemption under Article 81(3) was not heard.<sup>61</sup>

An interesting issue arising in the context of grant-back clauses is whether the grant-back obligation in GPLs is excluded from the scope of the TTBER. As mentioned in section 3 of this chapter, GPLs provide that licensees are obliged to license for free and under a GPL any modified versions or derivatives of the software to any interested parties. In effect, the GPL imposes on the licensee the obligation to grant back any improvements to the original licensor (should he or she be interested). However, given that anyone can acquire a GPL to the new computer program, the obligation is not an exclusive grant-back and is not severed from the licence.

Last but not least, it should be noted that the draft Regulation had also included in its list of severable terms the obligation of licensees in a non-reciprocal agreement to limit the output of contract goods, a term which is black-listed by virtue of article 4(1)(b) when it appears in a licence between competitors. This output limitation term is not chastised by article 4 in the Regulation as it was eventually adopted, most probably in the general context of the Regulation being quite permissive towards non-reciprocal agreements.

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<sup>60</sup> *ibid* subparagraphs (a) and (b) of article 5(1).

<sup>61</sup> BSA had made this suggestion in its feedback on the draft block exemption, see note 46 above, at 4.

## 4.4 The TTBER and software licences: is something missing?

Aside from the difficulties posed by the provisions on market share calculation, the way in which the block exception deals with software copyright licences is its other weakness. The lists of anti-competitive and excluded terms in articles 4 and 5 were obviously drafted bearing in mind examples of patent and know-how licences rather than software copyright licences. Even though it is useful for undertakings to know whether or not they should stipulate in their software licensing agreements terms on output restrictions, customer and market allocation or grant-back obligations, a variety of terms pertinent to software licences is absent from the Regulation. And even though terms not mentioned in the Regulation are not presumed to contravene Article 81(1), undertakings will be prone to assume that they do, since these terms are not condemned by the very piece of legislation intended to implement Article 81(3) in the context of technology transfer agreements. Below follows a list of clauses which often appear in software licences and whose pro-competitive credentials are doubtful.

### *Designated machine clauses*

Software licences often stipulate that the licensed software may only be used on a specified computer. Licensors put forward many justifications for including such a term in the agreement: It prevents licensees from copying the software on many different machines without paying royalties; it makes the calculation of royalties easier because it links royalties to actual use; it prevents licensees from using machines which are incompatible with the software and thus protects the integrity of the licensed software. The Guidelines endorse the latter two justifications. Guideline 156 stipulates that calculating software licensing royalties on a per machine basis does not infringe Article 81(1). And Guideline 194 says that tying a product to the licensed technology is not anti-competitive or at least is exempt under Article 81(3) if the product—in this case, the machine on which the software must be used—is necessary for exploiting the technology in a technically satisfactory way.

However, designated machine clauses may sometimes be a façade behind which tying arrangements are hidden. This is the case when licensors demand that licensees only use machines which the licensors themselves have manufactured and no other compatible

machines. This way, the licensor is tying the hardware to the licensed software under the pretext of ensuring that the software performs well.<sup>62</sup>

The Regulation makes no reference to designated machine clauses in the black list of article 4 or in the list of severable conditions of article 5, whereas the Guidelines state that tying is exempted below the thresholds of article 3.<sup>63</sup> The Commission believes that, in the context of technology transfer licences, tying infringes Article 81(1) only when the licensor has a significant degree of power in the tying product and can therefore restrict competition in the market of the tied product.<sup>64</sup>

It is questionable whether tying hardware to the licensed software is only anti-competitive when the software licensor has a high market share in the relevant product or technology markets. A designated machine clause masking a tying arrangement can be anti-competitive even below the thresholds of article 3 of the Regulation and should therefore have been listed either as a black-listed or an excluded restriction within the Regulation.

#### *Error correction prohibitions*

The absence of any reference to error correction prohibitions in the block exemption is a typical example of its failure to address certain aspects of the legal uncertainty surrounding software licensing agreements.

The Software Directive makes two contradictory references to clauses prohibiting error correction. Article 5(1) of the Directive says that it is possible to contractually prohibit the lawful user of a computer program from correcting errors—commonly known as bugs—which the program may have. Recital 18 to the Directive says the opposite: error correction cannot be contractually prohibited. Given that the Software Directive fails to clarify when and if error correction infringes software copyright, it would have been useful if the 2004 block exemption offered guidance as to which error correction restrictions are likely to

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<sup>62</sup> M Powel 'Drafting Software Licences in the Light of EEC Competition Rules' (1993) 9 Computer L & Security Rep 254, 256.

<sup>63</sup> Guideline 192.

<sup>64</sup> Guideline 193. The Commission is more likely to condemn a tying arrangement as anti-competitive when the licensor holds a dominant position. A recent example of the Commission finding tying to breach Article 82 is the Microsoft decision: the Commission found that the company abused its market power by tying Windows Media Player to its Windows OS. The text of the decision is available at <<http://europa.eu.int/comm/competition/antitrust/cases/decisions/37792/en.pdf>> (accessed 5 August 2004).



infringe Article 81(1). Such restrictions may constitute tying maintenance services to the right to use a program and may therefore eliminate competition in the software maintenance market.

*Ban on decompilation for the purpose of creating interoperable hardware*

Under the Software Directive, the right to decompile a computer program constitutes one of the exclusive rights of the copyright holder and is thus part of the existence of the copyright protecting the program.<sup>65</sup> Article 6 provides an exception to this exclusive right: lawful users of the program are allowed to decompile it for the purpose of creating a new interoperable program which must not infringe the copyright of the decompiled program.<sup>66</sup>

Can the licensor of a computer program forbid the licensee to decompile it for the purpose of creating interoperable hardware? It is difficult to answer this question with certainty. As already discussed in section 3.6.3 of chapter 2, the Directive itself does not provide for such an exception to the exclusive right of the right holder to decompile his or her program. Nonetheless, recital 23 to the Directive says that the exception provided for in article 6 aims at making it possible ‘to connect all components of a computer system’, the latter including both software and hardware;<sup>67</sup> and the Commission’s 2004 staff working paper on reviewing EC copyright laws agrees with this interpretation of article 6.<sup>68</sup>

So where does all this leave licensees who are asked to enter agreements prohibiting them from decompiling the licensed software with the objective of manufacturing interoperable hardware? And what if this new hardware is essential for producing the contract goods specified in the licensing agreement? This is another point where the 2004 block exemption should have stepped in and compensated for the Software Directive’s lack of clarity by providing that clauses prohibiting decompilation for the purposes of creating interoperable hardware take the agreement outside the scope of the block exemption or at least are severable from the agreement.<sup>69</sup>

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<sup>65</sup> Software Directive article 4(b).

<sup>66</sup> *ibid* article 6.

<sup>67</sup> It is apparent from recital 10 to the Software Directive that the components of a computer system include software and hardware.

<sup>68</sup> Staff working paper on the review of the EC legal framework in the field of copyright and related rights (19 July 2004) <[http://europa.eu.int/comm/internal\\_market/copyright/docs/review/sec-2004-995\\_en.pdf](http://europa.eu.int/comm/internal_market/copyright/docs/review/sec-2004-995_en.pdf)> (accessed 10 October 2006) para 2.2.1.3.

<sup>69</sup> Forrester maintains that such clauses might infringe Article 81 EC Treaty. Forrester (n 11) 13.

## 4.5 Conclusion

Even though the inclusion of software copyright licensing agreements in the block Regulation's scope is a positive step on the Commission's part, the Regulation does not entirely dissolve the uncertainty surrounding the application of Article 81 to software licences.

The adoption of the 2004 Regulation is undeniably good news for undertakings engaged in software licensing. A wide spectrum of software licence types is covered by the Regulation's safe harbour. And undertakings involved in such agreements now have guidance as to which variations of common licensing terms are acceptable—eg terms concerning customer and market allocation or technical field of use restrictions.

However, the 2004 block exemption does not offer a sufficient degree of legal certainty as to which software licences are safe from Article 81(1). Parties to software licensing agreements will face problems when calculating their market shares so as to verify whether they can benefit from the block exemption; their agreements may be covered by the Regulation at the time of conclusion, but soon afterwards may be taken out of its scope if the licensed software proves to be marketable and successful; exclusive grant-back clauses are not allowed in subcontracting; and the Regulation offers no guidance on a variety of terms specific to software licences. It is also regrettable that the Regulation does not apply to database licences, which constitute an important part of software licensing activity within the common market.

Given that, under the new regime of competition law enforcement within the EC, agreements between undertakings will no longer be notified to the Commission so as to seek an individual exemption in the context of Article 81(3), and that NCAs and national courts will be able to enforce Article 81 in its entirety, the 2004 block exemption is not satisfactory. Undertakings and NCAs will have difficulties to abide by and implement—respectively—the 2004 Regulation.

## 5 LICENCES AND THE VERTICAL AGREEMENTS BLOCK EXEMPTION

Vertical agreements are the most frequently encountered type of commercial agreement. They are those entered into between two or more firms operating at different levels of the market; for example, between an OEM and a software retailer. The Vertical Block Exemption defines 'vertical agreements' in article 2(1) as agreements or concerted practices entered into between two or more undertakings each of which operates, for the purposes of the agreement, at a different level of the production or distribution chain, and which relate to the conditions under which the parties may purchase, sell or resell certain goods or services.<sup>70</sup> The block exemption applies to provisions in vertical agreements which relate to the assignment to the buyer or use by the buyer of intellectual property rights (IPRs), provided that the IPR provisions are ancillary and part of a vertical agreement, ie an agreement with conditions under which the parties may purchase, sell or resell certain goods or services.<sup>71</sup> Further, the IPR provisions should directly relate to and be necessary for the use, sale or resale of the goods or services supplied by the buyers or their customers and should not contain restrictions of competition that have the same object or effect as vertical restraints not exempted under the block exemption. Finally, the IPRs also need to be assigned to, or used by, the buyer and cannot constitute the primary object of the agreement. This condition requires that in order to be covered by the block exemption, the primary object of the agreement must not be the assignment or licensing of IPRs, but the purchase or distribution of goods or services and the IPR provisions must serve the implementation of the vertical agreement. Agreements having as the primary object the assignment or licensing of IPRs may benefit from the Technology Transfer Block Exemption, as already discussed at length in this chapter. Thus if the agreement relates to distribution rather than licensing, the Vertical Agreements Block Exemption needs to be considered. It should be noted that, just as in the case of the TTBER, the scope of the Vertical Agreements Block Exemption is defined by means of market shares. The block exemption covers vertical agreements so long as the supplier's market share does not exceed 30 per cent of the relevant market; and in the case of agreements which contain exclusive supply obligations, the buyer's market share in the relevant market should not exceed 30 per cent.

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<sup>70</sup> Commission Regulation (EC) 2790/1999 on vertical agreements and concerted practices [1999] OJ L336/21, Commission Regulation (EC) 2658/2000 on specialisation agreements [2000] OJ L304/3 and Commission Regulation (EC) 2659/2000 on categories of research and development agreements OJ L304/7 (Vertical Agreements Block Exemption).

<sup>71</sup> Vertical Agreements Block Exemption article 2(3) and recital 3. Commission Notice, Guidelines on Vertical Restraints [2000] OJ C 291/1.

## 6 REGULATION 1/2003 ON EC COMPETITION LAW ENFORCEMENT

Regulation 1/2003 on the implementation of Articles 81 and 82 EC Treaty has already been briefly mentioned in sections 4.1 and 4.3.4 of this chapter. Given the Regulation's importance in the current EC competition law landscape, it is worth reviewing here its main features and speculating on the Regulation's effect on software licensing practices and case law.

The main purpose of Regulation 1/2003 was to decentralise the enforcement of EC competition law in the Community and abolish the previous *ex ante* control system of anti-competitive behaviour. Under the new rules, which came into force on 1 May 2004, national competition authorities and national courts are able to apply not only Articles 81(1) and 82—as had already been established in ECJ case law—but also 81(3). In other words, when the Commission, a NCA or a national court review the possible anti-competitive effects of an agreement, the undertakings involved can claim that their agreement is exempted from the application of 81(1) and thus legal because it falls under 81(3). On the other hand, undertakings can no longer notify their agreements to the European Commission or to NCAs so as to seek an individual exemption on the basis of Article 81(3). Agreements that satisfy the criteria of 81(3) are automatically exempt and legal.

When NCAs and national courts—acting on their own initiative or on a complaint—review a restrictive practice or a dominance abuse which may affect trade between Member States, they must apply in parallel national competition rules and Articles 81 and 82. However, if national competition rules dealing with agreements and practices are stricter than Article 81, only 81 will apply; whereas, if national laws dealing with the unilateral conduct of an undertaking are stricter than Article 82, Member States are free to apply their own stricter laws.

The Regulation envisages a regime of close co-operation between the Commission, NCAs and national courts. To that effect, the European Competition Network has been set up, which allows the Commission and NCAs to exchange information about cases and, most importantly, administrate case allocation for situations where more than one Member States

have taken up the same case or have received complaints regarding the same case. A Commission Notice also issued in 2004 clarifies the criteria determining case allocation.<sup>72</sup>

NCA's are obliged to inform the Commission when launching a formal investigation into a possible infringement of Articles 81 or 82 and, if they intend to issue a negative decision—one requiring the infringement to cease, imposing a fine or ordering interim measures—or a decision accepting commitments from the undertakings involved, they must inform the Commission 30 days prior to adopting this decision. Also, if the Commission starts investigating a case, Member States no longer have the competence to deal with it.

As for national courts, not only they may seek assistance from the Commission on the application of Articles 81 and 82, but also the Commission and NCA's may act as *amici curiae* to national courts by submitting written or oral observations on the correct application of 81 and 82. Even though courts are not obliged to follow these observations, it is to be expected that any guidance provided by the Commission will have a decisive influence on the court's judgment. Moreover, courts cannot adopt judgments conflicting with past or anticipated decisions of the Commission and must send copies of their judgments to the Commission soon after notifying the parties involved in the case.

Last but not least, under Regulation 1/2003 the Commission may still initiate proceedings into a suspected infringement of Articles 81 or 82. Three important elements introduced by the Regulation are that the Commission can impose structural (and not just behavioural) remedies on undertakings, can adopt decisions accepting commitments offered by undertakings (though such decisions are not binding on NCA's and national courts) and has the power to inspect private homes if there is reasonable suspicion that evidence proving a violation of Articles 81 or 82 is kept there.

For the time being, the effect of the new self-assessment system of software licences (both copyright and distribution ones) remains unclear. It is not certain whether the new system has made companies more vigilant against including anti-competitive terms in their agreements or whether it has made them more negligent: since they no longer have the possibility of notifying their agreements to the Commission and since the Commission itself would rarely initiate proceedings against an agreement, one can suspect that companies may

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<sup>72</sup> Commission Notice on cooperation within the Network of Competition Authorities [2004] OJ C101/43.



have become somewhat complacent about conforming to the TTBER and the Vertical Agreements Block Exemption. This complacency might be aggravated by the complexities associated with the market share calculations required on the part of the companies in order to assert whether a particular agreement falls under the scope of the two block exemptions.<sup>73</sup> On the other hand, perhaps some companies have not become entirely complacent as it is possible for third parties to bring agreements to the attention of NCAs.

Any complacency or confusion caused by the new competition law enforcement regime is not likely to be dissipated by Commission decisions on software copyright licences in breach of Article 81: in 2006 it was reported that the Commission was at the time not investigating any technology transfer agreements except for patent pools (which are excluded from the TTBER's scope).<sup>74</sup> Given that the purpose of the new enforcement regime was to decentralise the implementation of Articles 81 and 82 and lighten the Commission's case law workload, as well as the Commission's view that most licensing agreements are pro-competitive, it is not anticipated that the Commission will investigate many technology transfer agreements in the future.

## 7 CONCLUSION

The application of Article 81 to software licences is surrounded by a certain degree of uncertainty. Undoubtedly, the adoption of the 2004 TTBER has cast some light on the issue. Those who enter types of software licences which are covered by its scope—eg licences allowing an undertaking to use a computer program for producing a product or a service, value-added licences etc—benefit from using the TTBER as a guide of which licensing terms might be in breach of Article 81. As already stated in section 4.5 of this chapter, the TTBER does have its shortcomings; however, software producers and their licensees have been enjoying a higher level of legal certainty since the new TTBER was adopted. The expansion of the Regulation's scope to cover copyright licensing agreements has been welcome news to the European software industry.

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<sup>73</sup> Difficulties pertinent to market calculation under the TTBER were discussed in section 4.3.3 of this chapter.

<sup>74</sup> Patent pools are excluded from the TTBER by virtue of recital 7. Regarding the dearth of Commission investigations into technology transfer agreements see B Bird and A Toutoungi 'The New EC Technology Transfer Regulation: Two Years on' (2006) 28 EIPR 292, 293.

As far as distribution licences are concerned, contracting parties (in particular big software houses and OEMs) also have some guidance on Article 81 in the form of the Vertical Agreements Block Exemption.

However, those entering types of software licences not covered by the TTBER or the Vertical Agreements Block Exemption have to fend for themselves. Not only is there no Regulation to steer them away from terms which may violate Article 81; there is also no ECJ case law on this issue. This means that those who enter, for instance, end-user licences or subcontracting licences (ie types not covered by either of the two regulations) have to tread carefully.

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# 5 ARTICLE 82 EC TREATY AND SOFTWARE LICENCES

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## 1 INTRODUCTION

The purpose of this chapter is to provide a comprehensive overview of software licensing terms and software licensing practices which may fall foul of Article 82 EC Treaty. A dominant software developer may abuse his market power either by dictating arbitrary licensing terms or by refusing to license his or her software to third parties. This chapter examines both software copyright licences and software distribution licences under the prism of Article 82: the two types of licences are intrinsically connected, as computer programs rarely reach the end user (the person who actually receives a copyright licence to the computer program) without the intervention of original equipment manufacturers (OEMs), hardware retailers or software retailers. Very often, abusive terms dictated in a distribution license are passed on to the end user through the copyright licence he or she acquires.

Compared to Article 81, Article 82 has produced a lot more case law in the context of software licensing. Not surprising, most of these concern Microsoft, a company which for many years now has held a quasi monopoly in the market for personal computer operating systems. However, aside from Microsoft's legal adventures, other cases involving abusive software licensing practices are also discussed. For instance, Apple was recently the object of an investigation by the French competition authority for its refusal to license its digital rights management (DRM) technology to competitors in the French market for music downloads.

The abusive licensing practices discussed at length in this chapter are tying and the arbitrary refusal to license software. The chapter first gives an overview of the well known cases against Microsoft on both sides of the Atlantic: the separate investigations by the US Department of Justice and by the European Commission into the licensing practices followed by the company throughout the 1990s. Afterwards, the chapter explores excessive and discriminatory pricing, tying of computer programs, and the conditions under which a dominant undertaking may be

obliged to license its copyright to third parties. While exploring these different aspects of dominance abuse, the Commission's findings in its March 2004 Decision on Microsoft's practices of tying and refusing to license interoperability information are analysed.

## 2 LEGAL PROCEEDINGS AGAINST MICROSOFT IN THE EU AND THE US

### 2.1 Proceedings in the US

This chapter deals with instances in which software licensing practices constitute dominance abuse under Article 82 EC Treaty. The proceedings against Microsoft initiated by the European Commission in 1998 provide material for the bulk of this chapter. However, for several reasons the proceedings against Microsoft in the US regarding the company's practice of tying its Internet Explorer web browser to the Windows's operating system (known as OS, this is a computer program that manages the hardware and software resources of a computer) are of relevance to this chapter. First of all, *United States v Microsoft* is cited on a few occasions in the Commission decision delivered against Microsoft in March 2004 (March 2004 Decision), as the US case resulted in a settlement which obliged Microsoft to license certain communications protocols that were of crucial importance for the interoperability sections in the March 2004 Decision.<sup>1</sup> Secondly, both investigations dealt with tying practices. And last but not least, *United States v Microsoft* offers a useful background to Microsoft's pattern of tying practices—a pattern that has been followed for over fifteen years. For all these reasons, this section offers a brief overview of the US investigation into Microsoft; the overview is by no means detailed, only sufficient for referring to *United States v Microsoft* where appropriate throughout this chapter.<sup>2</sup>

The US investigation started in 1990, when the Federal Trade Commission began investigating whether Microsoft's pricing policies impeded competition—by 1990 the company was already

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<sup>1</sup> *Microsoft* (Case COMP/C-3/37.792) (March 2004 Decision).

<sup>2</sup> Some useful sources chronicling the US investigation into Microsoft: the US Department of Justice archives all relevant official documents at <[http://www.usdoj.gov/atr/cases/ms\\_index.htm](http://www.usdoj.gov/atr/cases/ms_index.htm)>; the Washington Post maintains a timeline of the case at <<http://www.washingtonpost.com/wp-dyn/business/specials/microsofttrial/timeline>> (both webpages accessed 1 September 2006); the March 2004 Decision briefly summarises the case in paras 14-20; a summary of the investigation can also be found in JP Jennings 'Comparing the US and EU Microsoft Antitrust Prosecutions: How Level is the Playing Field?' (2006) 2 *Erasmus Law & Economics Rev* 71, 72-77.

dominant worldwide in the market for OS products for Intel-compatible PCs.<sup>3</sup> In fact, throughout the 1990s Microsoft's market share was over 90 per cent and in the period of 1997-1998 it stood at over 95 per cent.<sup>4</sup> The US Department of Justice took over the case and in 1994 the two sides reached a settlement which provided that Microsoft would not bundle its products through contracts with computer manufacturers. The settlement was approved by a consent decree delivered in 1995 by Judge Jackson of the District Court for the District of Columbia.<sup>5</sup> However, soon afterwards Microsoft started bundling its Internet Explorer web browser with the Windows 95 PC OS, which in 1997 led the Department of Justice to seek an injunction against Microsoft for violating the 1995 consent decree. The Department of Justice claimed that the company was leveraging its dominance in the PC OS market into the market for web browsers (where Microsoft's main competitor was Netscape). On the other hand, Microsoft claimed that Internet Explorer was simply an OS upgrade and not a separate computer program, and therefore its practice of bundling Internet Explorer with Windows did not breach the 1995 consent decree. Eventually, the Court of Appeals for the District of Columbia found for Microsoft and also held that the 1995 consent decree did not apply to Windows 98.<sup>6</sup>

### 2.1.1 The District Court's judgment

The Department of Justice refused to give up. In 1998, along with twenty states it filed a antitrust suit against Microsoft, where they claimed that Microsoft had violated Sections 1 and 2 of the Sherman Act. The plaintiffs claimed that the defendant breached Section 1 by making exclusive dealing arrangements and by tying Internet Explorer to Windows 95 and Windows 98; and that it breached section 2 by unlawfully maintaining its monopoly in the market for PC OSs and by attempting to unlawfully monopolise the market for web browsers. On 5 November 1999 Judge Jackson of the District Court for the district of Columbia handed down his findings of fact<sup>7</sup> and soon afterwards, on 3 April 2000, he handed down his conclusions of law, where he found for the plaintiffs on all counts apart from the allegation that Microsoft had breached section 1 by engaging in exclusive dealing (the court said that there was insufficient evidence to

<sup>3</sup> An Intel-compatible PC is one designed to function with Intel's 80x86/Pentium families of microprocessors or with compatible microprocessors manufactured by Intel or by other firms. See *United States of America v Microsoft Corp* 84 F Supp 2d 9 (DDC 1999) para 3.

<sup>4</sup> *Ibid* para 35.

<sup>5</sup> *United States of America v Microsoft Corp* LEXIS 20533 (DDC 1995).

<sup>6</sup> *United States of America v Microsoft Corp* WL 236582 (DC Ct of Apps 1998).



support that claim).<sup>8</sup> As far as the tying issue was concerned, the judge emphasized that computer manufacturers and Windows users were not able to remove Internet Explorer from the OS. On 7 June 2000 the same court ordered Microsoft to split into two companies, one producing OS products and the other application software.<sup>9</sup>

The District Court found that Microsoft's practice of tying Internet Explorer to the Windows OS was in breach of sections 1 and 2 of the Sherman Act. The practice breached section 1 as an agreement which imposed illegal restraints on trade, and breached section 2 because it illegally maintained Microsoft's monopoly in one market (that of Intel-compatible PC OSs) and illegally attempted to monopolise a secondary market (that of web browsers). Sections 1 and 2 of the Sherman Act are the rough equivalents of Articles 81 and 82 EC Treaty: therefore, for the purposes of this chapter Microsoft's breach of section 1 is not relevant and will not be discussed here. On the other hand, the company's breaches of section 2 are highly relevant and will be summarised so as to provide a reference base for other parts of this chapter.

Before summarising Judge Jackson's findings on how Microsoft maintained its monopoly in the market for OS products, it is useful to point out that section 2 of the Sherman Act states that it is unlawful for a person to monopolise or attempt to monopolise 'any part of the trade or commerce among the several States or with foreign nations'. At first glance the wording seems to be markedly different from that of Article 82 EC Treaty, which states that it is unlawful to abuse (and not simply acquire or maintain) one's dominant position. However, in truth the two provisions are not so different. According to US case law, a monopoly violates section 2 when maintained or acquired by means of an anti-competitive behaviour. The question for determining whether the behaviour is indeed anti-competitive is whether the defendant's conduct is exclusionary: did it restrict significantly or threaten to restrict significantly the ability of other undertakings to compete in the relevant market on the merits of what they offer to customers?<sup>10</sup>

Returning to the District Court's judgment, Microsoft did unlawfully attempt to monopolise the secondary market for web browsers and indeed managed to take a large share of that market: in 1995 Navigator—the first web browser with a graphic user interface to be distributed at a

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<sup>7</sup> *United States of America v Microsoft Corp* 84 F Supp 2d 9 (DDC 1999) (Findings of fact).

<sup>8</sup> *United States of America v Microsoft Corp* 87 F Supp 2d 30 (DDC 2000) (Conclusions of law).

<sup>9</sup> *United States of America v Microsoft Corp* 97 F Supp 2d 59 (DDC 2000).

<sup>10</sup> *Eastman Kodak Co v Image Technical Services Inc* 504 US 451.

profit—had a market share of over 70 per cent and by 2000, owing to Microsoft's behaviour, its share had plummeted while Internet Explorer's share had risen to over 50 per cent of the relevant market.<sup>11</sup> However, Microsoft's officials had admitted that they never intended to charge a licensing fee for distributing or licensing Internet Explorer—the monopolisation attempt did not have as its purpose to reap great financial returns from that product.<sup>12</sup> Microsoft's primary goal (one that was eventually achieved) was to preserve the applications barrier to entry which ensured that Windows remained the most popular product in the market for PC OSs.

The notion of applications barriers to entry is closely connected to that of positive network effects; both terms need to be explained at this point before further summarising Microsoft's violation of section 2 of the Sherman Act.

A positive network effect is the phenomenon in which the attractiveness of a product increases in direct analogy to the number of people using it. Windows is highly attractive to consumers because many people already use it. Demand for Windows enjoys positive network effects for two reasons. First, consumers are attracted to compatibility and conformity: for instance, a company acquires a licence for Windows because it is an OS that its employers are likely to know how to use; a university acquires Windows because its academic staff will be able to share files created in a Windows environment with colleagues in other universities. Secondly and most importantly, consumers prefer Windows because they can choose from a vast number of software applications written for Windows.<sup>13</sup> However, the very reason this vast number of applications exists is that developers prefer to write software compatible with an OS (ie Windows) installed in most PCs: Microsoft's dominance causes independent software developers to write applications for Windows, this leads more PC users to buy Windows and this in turn leads to even more applications being created. One could describe it as a virtuous circle. In the Commission's decision against Microsoft, which is discussed in section 2.2 of this chapter, the Commission distinguishes between direct and indirect network effects. Direct network effects refer to the fact that consumers are attracted to compatibility and conformity, whereas indirect network effects refer to their attraction to a wide range of complementary products.<sup>14</sup>

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<sup>11</sup> Conclusions of law (n 8) para 13.

<sup>12</sup> Findings of fact (n 7) paras 136-137.

<sup>13</sup> In 1999 70,000 Windows-compatible applications existed in the US. Findings of fact para 40.

<sup>14</sup> *Microsoft* (Case COMP/C-3/37.792) para 420, note 536.

The positive network effects enjoyed by Microsoft as far as Windows is concerned have a negative side for the firm's competitors: they create an applications barrier which obstructs their entry to the market for Intel-compatible OSs. An OS developer would be able to provide a viable alternative to the Windows OS only if there were enough applications written for this new alternative OS: OS buyers would expect to see enough compatible applications in terms of variety, choice and currency (ie applications for which updates are regularly available) before buying this particular OS. However, it is impossible for the OS developer in question to convince many applications developers to create products compatible with his or her OS. As we have already seen, applications developers tend to create products compatible with Windows due to the OS's positive network effects.

Microsoft became aware that middleware developed by other software manufacturers could threaten the applications barrier to entry which protected its dominance in the PC OS market. Middleware is software which relies on interfaces exposed by the underlying OS and which at the same time exposes application programming interfaces (APIs) on which applications can rely.<sup>15</sup> Two of Microsoft's competitors, Netscape and Sun Microsystems, created middleware which after further development could potentially expose enough APIs to enable other developers to create applications which rely fully on the middleware rather than on the underlying operating system. If this became reality, developers would stop writing applications primarily for Windows, and PC users would be able to choose from a variety of OS products which would be compatible with a variety of applications. These cross-platform applications would be distributed together with the required middleware and would communicate seamlessly with many different OSs. The applications barrier to entry in the market for OSs would be brought down. It should be noted here that Judge Jackson said in his findings of fact that it was not clear whether, had Microsoft not engaged in its anti-competitive practices, Netscape and Sun would have been able to break the applications barrier: their middleware would need substantial improvement before it would allow applications to be ported efficiently between different OS platforms. Nevertheless, Judge Jackson found that Microsoft's actions extinguished any chance for Netscape and Sun to introduce competition in the market for PC OSs.

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<sup>15</sup> Middleware can also be defined as computer programs which increase the functionality of the OS, but which are not integral to the OS itself. Examples include web browsers, email software, and media players. APIs are interfaces which allow OSs, middleware and applications to communicate with one another.

Microsoft's anticompetitive behaviour focused on hindering the distribution and further development of two middleware products: Netscape's Navigator web browser and Sun's Java technology. Even though at first look Microsoft was simply trying to gain the largest market share for its own middleware products (Internet Explorer and its implementation of the Java technology) which were in direct competition with Netscape and Sun's middleware, in reality, as already mentioned above, this was only a secondary objective for Microsoft. Its primary objective was to ensure that Windows' dominance in the OS market was left unthreatened. The tactics which Microsoft followed to promote Internet Explorer and its Java technology at the expense of the two respective competing products were both contractual and behavioural—the latter were a mixture of barter and blackmailing directed towards other players in the software and hardware industries.

As far as Internet Explorer was concerned, Microsoft targeted three groups of firms: original equipment manufacturers (known as OEMs, these are hardware producers such as IBM and Compaq, which assemble PCs and pre-install software on them), software developers, internet access providers (known as IAPs, these are companies such as America Online) and finally internet content providers (ie individuals and organisations that maintain websites).

Microsoft forced OEMs to accept Windows distribution licences which tied Internet Explorer to Windows; OEMs had to accept the tying arrangement and Microsoft's restrictions regarding Internet Explorer if they wished to acquire a distribution licence to Windows. The licences imposed restrictions on OEMs' freedom to reconfigure or modify Windows so that they could generate more usage for Navigator. Microsoft also imposed the tying arrangement on end users who eventually acquired copyright licences to Windows through OEMs and their retailers.<sup>16</sup> Distribution and copyright licences aside, Microsoft also used incentives and threats to compel OEMs to favour Internet Explorer rather than Navigator in terms of software distribution, promotion and technical support; additionally, it created technological obstacles for OEMs and end users who wanted to remove Internet Explorer from Windows or have another software as the default web browser on their desktops. The District Court rejected the technological and

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<sup>16</sup> As explained in chapter 4 of the thesis, software developers such as Microsoft offer to OEMs and software retailers distribution licences to a computer program. These licensees do not have a licence to the copyright of the program; the copyright licence is acquired by the end users, who buy a copy of the program from OEMs, hardware retailers or software retailers.



copyright arguments put forward by Microsoft regarding its tying practices. The allegation that Internet Explorer was an integral part of Windows was rejected as scientifically unfounded. The allegation that the contractual and technological restrictions were justified under copyright law as efforts to protect the integrity of Microsoft's copyright OS against distortion or truncation was rejected as legally unfounded. The court said that no such right exists under US copyright law and in any case copyright holders cannot use their exclusive rights in the context of a scheme to monopolize a market.<sup>17</sup>

As part of its unlawful efforts to install Internet Explorer in practically every PC in the US and push Navigator out of the market, Microsoft also offered Internet Explorer for free to other software developers, to IAPs and to internet content providers. All these were expected to bundle the browser together with their own products. Software developers were also given incentives to create software compatible with Microsoft's APIs rather than APIs exposed by Navigator. IAPs were offered rebates and outright payments for encouraging their subscribers to upgrade their client software;<sup>18</sup> the upgraded version just so happened to be bundled with Internet Explorer. Last but not least, Apple was blackmailed into having Internet Explorer rather than Navigator as the default browser on its MAC OS: Microsoft threatened ceasing production of MAC Office, a suite of programs widely popular with Apple's customers.

Microsoft also refused for a long time to license to Netscape the APIs exposed by Windows 95. Microsoft stated it would allow Netscape to use the new APIs so as to upgrade Navigator (and render it compatible with Windows 95) only if the company would agree to strip Navigator from APIs which could be used by applications. Netscape refused to comply and therefore Microsoft released the APIs in question only three months after marketing Windows 95; as a result, Netscape lost great revenues from Navigator sales.

As far as Java technology was concerned, Microsoft did everything possible to ensure that existing and future Java applications would not function properly across different platforms and therefore would not threaten the applications barrier to entry enjoyed by Windows. Java is an applications programming language developed by Sun Microsystems. Sun distributes a set of computer programs known as Java class libraries, which expose APIs to be used by Java

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<sup>17</sup> Microsoft had invoked 17 USC 106, which does not actually enumerate a right to the integrity of the copyright work.

<sup>18</sup> The term 'client software' is defined in section 2.2.1 of this chapter.



applications. It also distributes a program called Java virtual machine (JVM), which translates Java bytecode into a form of object code comprehensible to the underlying OS installed on the PC.<sup>19</sup> When the class libraries and the JVM are installed in a PC, the latter is said to carry 'a Java runtime environment' and can therefore run Java applications. To increase the popularity of Java, Netscape agreed to distribute Sun's class libraries and JVM together with every copy of Navigator. Microsoft gravely impeded the development and expansion of the class libraries<sup>20</sup> and at the same time promoted its own implementation of the Java technology, one which was incompatible with the version distributed by Sun. Microsoft refused to distribute Sun's JVM and instead distributed its own version together with Windows and Internet Explorer. As a result, the majority of PCs in the US was installed with Microsoft's Java implementation, which would not run Java applications written using Sun's development tools. Microsoft's policy spelled an early death for Java cross-platform applications.

Having flooded the market with its own middleware (ie Internet Explorer and its own implementation of the Java technology) through unlawful licensing terms and bullying, Microsoft effectively and unlawfully protected its dominance in the OS market.

### **2.1.2 The Court of Appeals' judgment and Microsoft's eventual settlement**

Following Microsoft's appeal against Judge Jackson's judgment, in June 2001 the Court of Appeals for the district of Columbia upheld only one of the District Court's findings: it agreed that Microsoft had breached section 2 of the Sherman Act by illegally protecting its monopoly in the market for PC OS products. The Court of Appeals reversed the finding that Microsoft had unlawfully attempted to monopolise the market for web browsers and sent back to the District Court two issues for reconsideration: whether Microsoft had engaged in unlawful tying and what the appropriate remedy for Microsoft's violations should be.<sup>21</sup> Regarding the issue of unlawful tying, the Court of Appeals took the view that tying Internet Explorer to Windows might be a sign of an efficient, pro-consumer innovation rather than anti-competitive behaviour. According

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<sup>19</sup> 'Bytecode' is an intermediate type of code intrinsic to the Java programming language. It lies between object and source code.

<sup>20</sup> Expansion of the class libraries would mean that Java applications would rely solely on the APIs exposed by the libraries and would thus run irrespective of the underlying OS installed on a PC.

<sup>21</sup> *United States of America v Microsoft Corp* 253 F 3d 34 (DC Cir 2001).

to the Court of Appeals, product tying is illegal only if the possible harm to competition outweighs the benefit to consumers.

The case was remanded to Judge Kollar-Kotelly of the District Court of the district of Columbia. In November 2001, before she had the chance to deliver her judgment and decide, among other things, whether Internet Explorer's tying was illegal, Microsoft and the Department of Justice reached a settlement ('the US Settlement') which was eventually also signed by eight out of the twenty states that had brought the case against Microsoft. In a judgment delivered on 1 November 2002 Judge Kollar-Kottely accepted the Settlement and rejected the remedy proposals of those states which had not accepted the settlement.<sup>22</sup> Eventually all states apart from Massachusetts accepted the settlement. Massachusetts was the only one of the twenty states to appeal against Judge Kollar-Kottely's November 2002 judgment; its appeal was rejected in June 2004 by the Court of Appeals for the district of Columbia.<sup>23</sup>

The Settlement, which is valid until November 2007, has two objectives. First, to allow competitors to develop software which is interoperable with Microsoft's own products. And secondly, to allow other companies to provide and support non-Microsoft software without them being penalised by Microsoft. For instance, the later should not retaliate by altering its commercial relations with these companies, or by withholding monetary payment or technical, sales and marketing support. However, the Settlement does not address one of the main complaints put forward by the Department of Justice when it filed its antitrust suit in 1998: it does not oblige Microsoft to offer a version of the Windows OS which does not include Internet Explorer. Below follows a consolidated list of the main obligations Microsoft has to fulfil under the US Settlement.

- a. Microsoft shall not penalise OEMs, IAPs and software or hardware vendors for developing, distributing, using or promoting software which competes with Windows or with Microsoft middleware. In the same spirit, Microsoft is forbidden from offering incentives to such companies for using, promoting or distributing its products exclusively or at a fixed percentage.

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<sup>22</sup> *United States of America v Microsoft Corp* 231 F Supp 2d 144 (DDC 2002).

<sup>23</sup> *Commonwealth of Massachusetts v Microsoft Corp* 373 F 3d 1199 (DC Cir 2004).

- b. Microsoft will license its products to OEMs using uniform licensing agreements. It may specify different royalties for different language versions and may offer discounts to OEMs based upon the volume of licenses undertaken by each OEM, but any discounts or royalty variations will be based on objective and verifiable criteria applicable to all OEMs. No preferential licensing terms should be offered to OEMs which favour Microsoft products.
- c. Microsoft will not prohibit OEMs from installing in PCs non-Microsoft middleware and displaying icons for such middleware on the PC's desktop on or in the PC's Start menu. Also, end users and OEMs should be allowed to remove icons or shortcut menus directing users to Microsoft middleware products installed on PCs.
- d. Microsoft will not discriminate against OEMs who manufacture PCs that launch automatically, or that offer users the option to launch non-Microsoft OSs or middleware when the PC is booted.<sup>24</sup> Also, OEMs should be free to assemble PCs in such a way that a non-Microsoft middleware product is invoked when a particular function is required. For instance, a PC may be constructed in such a way that, when the user wishes to listen to an audio stream, RealPlayer rather than Windows Media Player is launched.
- e. Microsoft is obliged to disclose to third parties (OEMs, software and hardware developers and internet service providers) the APIs which make its middleware interoperable with its OS products. The disclosed information may only be used by third parties for the purpose of developing their own interoperable software products. Any intellectual property rights required for using the APIs in question must be available through licensing under reasonable and non-discriminatory terms.
- f. Microsoft is obliged to disclose and license, again under reasonable and non-discriminatory terms, the communications protocols which allows a Windows OS installed on a client computer to communicate with the OS installed in the server computer.<sup>25</sup> The communications protocols may only be used by licensed third parties for the purpose of enabling non-Microsoft server OSs to communicate seamlessly with the Windows client OS or with other client OSs which are compatible with the Windows server OS.

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<sup>24</sup> 'Booting' is the procedure which takes place when a computer is started up: the computer starts executing instructions built in its ROM and launches its operating system and various middleware.

<sup>25</sup> The terms 'communications protocol' and 'client/server' are explained in section 2.2.1 of this chapter.

In the context of fulfilling its various obligations arising from the US Settlement, in 2002 Microsoft unveiled the Microsoft Communications Protocol Program (MCP).<sup>26</sup> Under the MCP, third parties can acquire licences to use both the specifications and the source code for Microsoft's client-server communications protocols. Even though the US Settlement was scheduled to expire in November 2007, in 2006 the US Department of Justice called for it to be extended for a further two years,<sup>27</sup> as it was commonly accepted that the MCP had not been operating smoothly: Microsoft had been very slow in disclosing the technical documentation accompanying the protocols, whereas the disclosed protocol source code was ridden with bugs. Microsoft agreed to voluntarily extend the Settlement until November 2009 and promised that the MCP will remain in place until November 2012, even if the settlement is not extended beyond 2009.<sup>28</sup>

## 2.2 Proceedings in the EU

The Commission's decision against Microsoft will be discussed where appropriate throughout the chapter. However, it is useful to provide first a summary of the *Microsoft* case here, as a background to other references to the case in the chapter.<sup>29</sup>

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<sup>26</sup> The current version of the licensing agreement which third parties need to enter in order to use Microsoft's client-server communications protocol can be viewed at <http://www.microsoft.com/about/legal/intellectualproperty/protocols/LicenseAgreement.msp> (accessed 2 November 2006).

<sup>27</sup> US Department of Justice 'Justice Department Requests Extension of Microsoft Final Judgment' (12 May 2006) [http://www.usdoj.gov/atr/public/press\\_releases/2006/216129.htm](http://www.usdoj.gov/atr/public/press_releases/2006/216129.htm) (accessed 1 November 2006).

<sup>28</sup> Microsoft Corporation 'Microsoft Statement on Agreement to Extend Part of Consent Decree Related to Protocol Licensing Program' (12 May 2006) <http://www.microsoft.com/presspass/press/2006/may06/05-12ConsentDecreeExtension.msp> (accessed 1 November 2006).

<sup>29</sup> *Microsoft* refers to the legal proceedings against Microsoft in the EU (including the Commission's investigation and decision as well as subsequent appeals to the CFI). Both the Commission and Microsoft maintain webpages which chronicle the *Microsoft* saga. The Commission provides links to the main legal documents and relevant press releases, whereas Microsoft lists documents containing its reactions and views on each stage of the legal proceedings. See <http://ec.europa.eu/comm/competition/antitrust/cases/Microsoft> and [http://www.microsoft.com/Presspass/legal\\_newsroomarchive.msp?case=European%20Commission](http://www.microsoft.com/Presspass/legal_newsroomarchive.msp?case=European%20Commission) (accessed 20 August 2006).



### 2.2.1 The Commission's investigation and its March 2004 Decision

The Commission's investigation into Microsoft's behaviour started in 1998, when Sun Microsystems complained to the Commission that Microsoft stopped supplying it with interface information (some of it protected by intellectual property rights) which was necessary for Sun's server OS to interoperate with Microsoft's dominant Windows OS. Sun also complained that Microsoft gave interface information only on a partial and discriminatory basis to some of its competitors. It followed a 'friend-enemy' scheme and, as Sun was classified as an enemy, it did not receive any interoperability information. Most personal computers (PCs) today belong to networks. Each network is controlled by a server, a powerful central computer which PC users access indirectly. In the context of such networks, PCs are often referred to as 'client PCs', as they communicate their requests (eg a printing request) to the server computer, which in turn answers those requests. Client PCs can communicate with their server only if their client OS is compatible with the server's OS. Given that 95 per cent of today's PCs worldwide use the Windows OS,<sup>30</sup> it was crucial that Microsoft disclosed to Sun interface information that would allow the latter to develop fully interoperable servers.

During the Commission investigations, Microsoft argued that Sun could have benefited from the MCPP which Microsoft had established following the US Settlement. Under the MCPP Sun could have acquired a licence for the communications protocols used between Windows server OSs and Windows client OSs. However, Sun retorted that such a licence would not cover server to server interoperability; additionally, licences under the MCPP contractually exclude use of the protocols for achieving server to server communication. In sum, Sun's server OS needed to be able to communicate both with the Windows client OS and with Windows server OS.

In the course of its investigation, the Commission also established that Microsoft bundled its server OS together with its Windows client PC OS; if customers wanted to buy a competing server OS, they would still have to buy Microsoft's all-inclusive Windows system for PC and servers and would therefore bear the cost of buying two server OS. The Commission believed that Microsoft's policy in the market for server software threatened to drive customers towards Microsoft's own products and reduce their choices due to the lack of alternative products that could fully interoperate with Windows.



In 2000, based on information from Microsoft's competitors and customers, the Commission broadened its investigation to assess the company's behaviour with regard to its Window Media Player software (WMP). The Commission believed that Microsoft was illegally tying its WMP to its dominant Windows OS: customers did not have the choice of buying a copy of Windows which did not incorporate a copy of WMP and were therefore unlikely to buy a competing media player separately.

***Microsoft's dominance abuse according to the March 2004 Decision***

On 24 March 2004 the Commission delivered a decision (hereafter 'March 2004 Decision') in which it found that Microsoft had abused its dominant position in the market for PC OSs within the European Economic Area and therefore breached Article 82 of the EC Treaty.<sup>31</sup> More specifically, the Commission held that Microsoft had leveraged its dominance in the market for PC OSs onto the markets for work group server OSs and for media players. It refused to supply interoperability information regarding the communication between Windows client PCs and non-Microsoft group servers, which lead to Microsoft's dominance in the market for work group server OSs. The Commission found that the exceptional circumstances laid out in *Magill*<sup>32</sup> were present in the facts of the *Microsoft* case and therefore Microsoft had been obliged (and failed) to license its interoperability information to its competitors. Microsoft also tied its WMP to Windows, which significantly weakened competition in the media player market.

A parenthesis should be opened here. It should be noted that, according to the March 2004 Decision, Microsoft had leveraged its dominance in the market for PC OSs not into the market for server OSs (which was Sun's complaint to the Commission), but into the narrower market for OS for work group servers. A work group server is a central network computer used by office workers in their day-to-day work. It allows them to perform tasks such as share files stored on the server or share printers and use applications installed on their PCs or on the server computer. The work group server also offers administration services for users or groups of users. More specifically, it ensures that users access and use the network resources (printing services,

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<sup>30</sup> *Microsoft* (Case COMP/C-3/37.792) (March 2004 Decision) recital 435.

<sup>31</sup> March 2004 Decision.

<sup>32</sup> Cases C-241 and 242/91 *Radio Telefis Éireann (RTE) & Independent Television Publications Ltd (ITP) v Commission of the European Communities* [1995] ECR I-743 (*Magill*).

shared files etc) in a secure manner—security is ensured through authentication and authorisation checks performed by the work group server.<sup>33</sup>

Parenthesis closed, it is of interest to give some more information on the Commission's findings regarding the two separate abuses committed by Microsoft.<sup>34</sup> On the issue of Microsoft's refusal to supply interoperability information to those wishing to compete in the work group server OS market, the Commission held that this abuse enabled the company to become dominant in the that market<sup>35</sup> and risked elimination of competition therein. This dominance in a market of such significant value—it concerns products widely used by office workers around the world—could have further consequences in the future. First, it could erect further barriers to entry to the client PC OS market: a future competitor producing a client PC OS will need to ensure that his or her product is compatible with Microsoft's work group server OS; by withholding this compatibility information, Microsoft avoids future competition in the market for client PC OS. Secondly, having already achieved dominance in the work group server OS market, Microsoft might proceed to refuse interoperability information to developers of products that need to interoperate with work group servers (for instance database servers). This way, Microsoft would leverage its dominance in other markets of the server industry. Turning to Microsoft's tying of WMP to the Windows for client PCs, the Commission found that this dominance abuse lead WMP to become as ubiquitous as Windows and therefore the leading media player in the market.<sup>36</sup> The tying practice could have two more ramifications in the future. First, it could lead internet content providers to encode their offerings primarily in the WMP format and lead developers of multimedia software to tailor their products to be compatible with WMP rather than with other media players. Secondly, domination of the media player market would offer Microsoft a strategic gateway to related markets from which there was high revenue potential: Microsoft might also become dominant in the markets for online music delivery or DRM solutions for audio and video content.

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<sup>33</sup> March 2004 Decision recitals 53-54.

<sup>34</sup> The Commission's findings on the abuses and their impact on the relevant markets are summarised in paras 1061-1072 of the March 2004 Decision.

<sup>35</sup> The share of Windows for work group servers roughly rose from 24 to 64 per cent in the period 1996-2002. March 2004 Decision para 591.

<sup>36</sup> However, the Commission did not find that Microsoft's tying practice led the company to achieve dominance in the media player market.

**Remedies imposed by the March 2004 Decision**

In its decision, the Commission imposed on Microsoft two remedies aimed at restoring fair competition conditions in the relevant markets and also ordered the company to pay a fine of €497 million. The first remedy obliged Microsoft to disclose, within 120 days of the date of notification of the decision, complete and accurate specifications for the protocols which allow Windows work group servers to communicate with other work group servers and also with Windows client PCs.<sup>37</sup> Microsoft should make specifications available to any company interested in developing and distributing work group server OS products; and it should allow any company to use, on reasonable and non-discriminatory terms, the interoperability information for the purpose of developing and distributing work group server OSs. Microsoft should also ensure that the interoperability information is kept updated on an on-going basis and in a timely manner. The decision stressed that Microsoft was not obliged to disclose the source code implementing the protocols, but instead only the specifications for the required protocols. It should be noted here that, owing to the US Settlement, Microsoft had already been forced to disclose and license to third parties the specifications and source code of protocols that allowed Windows for client PCs to communicate with Windows for servers. However, the Commission imposed the interoperability remedy to Microsoft because in its view the disclosures under the US Settlement were not sufficient for guaranteeing interoperability in the work group server market in Europe: it was crucial for server software producers to have access to protocols on server to server communication.

The second remedy required Microsoft to offer within 90 days a version of Windows client PC OS which did not include WMP. This unbundled version was to be offered to OEMs operating within the European Economic Area. Microsoft was allowed to continue selling versions of Windows OS which were bundled with WMP; moreover, it was not obliged to sell the unbundled version at a lower price than the unbundled version. The decision also envisaged that the Commission would appoint a Monitoring Trustee who would oversee the implementation of the imposed remedies: he or she would ensure that Microsoft discloses complete and accurate protocol specifications, and that the two versions of Windows can perform equally well.

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<sup>37</sup> The term ‘communications protocol’ refers to the rules of interconnection and interaction between the various pieces of software running on different physical machines (ie computers) in the same network. March 2004 Decision (n 31) recital 49.

## 2.2.2 Appeals against the March 2004 Decision

### *Main appeal against the March 2004 Decision*

On 7 June 2004 Microsoft appealed to the CFI against the Commission's March 2004 Decision.<sup>38</sup> It asked the CFI to annul the decision or, failing that, to annul or substantially reduce the fine imposed. Microsoft claimed that the Commission had not applied correctly the ECJ's exceptional circumstances doctrine to the facts of the case at hand and therefore Microsoft had not been obliged to license its proprietary technology to Sun and the rest of its competitors. Microsoft also submitted that Sun never actually requested a licence for using the interoperability information necessary for developing a work group server OS compatible with the Windows PC OS. Regarding the Commission's finding that Microsoft infringed Article 82 by bundling the WMP with the Windows PC OS, Microsoft claimed in its appeal that the Commission had erred. According to Microsoft, this part of the decision was based on the assumption that the widespread distribution of bundled WMP copies might have resulted in a future situation in which content providers and software developers would encode their products exclusively in a WMP format and therefore the market for media players would be foreclosed to Microsoft's competitors. Microsoft said that this speculative foreclosure theory was inconsistent with evidence that content providers actually continued to encode in multiple formats; it was also inconsistent with the Commission's findings in *AOL/Time Warner*.<sup>39</sup> Microsoft also claimed that WMP was not bundled with Windows, because the two were not separate products; the Commission had failed to prove that WMP and Windows were not connected naturally or by commercial usage. Closely related to this was Microsoft's argument that licensing the Windows OS and WMP together was also a business choice; technological advances and changes in customer demand dictated that the two pieces of software should be integrated. Microsoft's final argument was that obliging it to unbundle WMP was remedy which was disproportionate and inconsistent with Article 13 the TRIPS Agreement,<sup>40</sup> which states that limitations and exceptions to exclusive rights of intellectual property holders should be confined to special cases—cases which do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the right holders.

<sup>38</sup> Case T-201/04 *Microsoft Corporation v Commission* [2004] OJ C179/18.

<sup>39</sup> *AOL/Time Warner* (Case COMP/M.1845) [2001] OJ L268/28.

<sup>40</sup> The Trade Related Aspects of Intellectual Property Rights Agreement (TRIPS) is Annex 1C of the Marrakesh Agreement Establishing the World Trade Organization (Marrakesh 15 April 1994).



**Interim relief appeal against the March 2004 Decision**

Apart from its main appeal to the CFI against the Commission's March 2004 Decision, on 25 June 2004 Microsoft also lodged an interim measures appeal to the CFI. In this second appeal, Microsoft asked for the remedies imposed in the March 2004 Decision to be suspended until the CFI delivers its judgment in the main appeal. It should be noted here that Microsoft had already paid the €497 million fine. On the same day that Microsoft lodged the interim measures appeal, the Commission voluntarily suspended the remedies until the outcome of this second appeal. For the interim relief appeal to succeed, Microsoft had to prove first that it had a *prima facie* case; and second, that the remedies of the March 2004 Decision would cause the company serious and irreparable damage.

Microsoft claimed that disclosing and licensing the specifications for its sever to server and client to server protocols would cause it to suffer serious and irreparable damage—a damage that could not be reversed if the March 2004 Decision were to be eventually annulled by the CFI. Microsoft claimed that the specifications were part of its Windows software products and therefore protected by copyright under the Software Directive.<sup>41</sup> It also claimed that certain aspects of the protocols in question were protected by existing or pending patents. Disclosing the specifications to third parties and allowing third parties to use them would breach those intellectual property rights and also cause Microsoft to incur great financial loss, as developing the protocols had been a very costly process. Additionally, Microsoft maintained that the protocols are trade secrets which the company does not disclose to third parties unless the latter undertake a contractual confidentiality obligation.

Responding to Microsoft's interim measures appeal, the President of the CFI issued an Order<sup>42</sup> stating that the company had failed to demonstrate that it might suffer serious and irreparable damage by implementing the March 2004 Decision (ie by offering an unbundled version of Windows and disclosing the interoperability information necessary for non-Microsoft server OSs to be compatible with Windows); therefore, the interim appeal was rejected. However, the President accepted that Microsoft had proved a *prima facie* case in challenging both remedies. The parts of the case dealing with Microsoft's arguments on its *prima facie* case are of particular

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<sup>41</sup> Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs [1991] OJ L122/42 (Software Directive).

<sup>42</sup> Case T-201/04 R *Microsoft Corporation v Commission* Order of the President of the CFI [2004] OJ C179/18, [2005] 4 CMLR 5.



interest because the same arguments were put forward in the company's main appeal against the March 2004 Decision. The CFI President's findings are of course not binding on the CFI chamber that will decide the main appeal and in any case the threshold for finding a *prima facie* case in an interim measures appeal is quite low. However, the Order will be taken into account when the Court decides on the main appeal and, more importantly, it raises interesting issues in the discussion of how the exceptional circumstances doctrine and abusive tying relate to software copyright licensing.<sup>43</sup> Any such issues will be explored in sections 4.2 and 5.2 of this chapter; in this section we will give an overview of the President's findings regarding Microsoft's arguments towards establishing a *prima facie* case and towards proving serious and irreparable damage.

#### *The interoperability remedy*

The President first dealt with the interoperability remedy. Before examining whether it would indeed result in a serious and irreparable damage for Microsoft, the President examined whether the applicant had established a *prima facie* case. He dismissed the claim that Sun had not requested a licence for using Microsoft's communications protocol (he found that the Commission had successfully refuted this claim in its March 2004 Decision). He also dismissed the argument that the disclosure remedy breached the TRIPS Agreement, as Microsoft had not elaborated on this in its interim relief appeal—it did so in an Annex to the appeal, but this was dismissed under the CFI's procedural rules.<sup>44</sup> However, the President accepted Microsoft's argument that the Commission had erred in applying the exceptional circumstances doctrine as laid down in *Magill* and *IMS Health*. Therefore, the appeal to suspend the interoperability remedy was *prima facie* founded. Regarding this last argument, Microsoft pleaded that the three exceptional circumstances laid down in *Magill* and *IMS Health* were not present in the company's behaviour and therefore Microsoft should not be obliged to license the protocol specifications. In Microsoft's view, the three exceptional circumstances were necessary for compulsory licensing to be justified. The Commission, on the other hand, said that the circumstances were sufficient for compulsory licensing to be prescribed, but not necessary: the list was not exhaustive. This disagreement—which touches upon the philosophical discussion of necessary versus sufficient—will have a decisive influence on the judgment that the CFI will

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<sup>43</sup> The CFI President's findings regarding the *prima facie* case are succinctly reviewed in SB Völcker and C O'Daly 'Implications of the Court of First Instance's *Microsoft* Order' (2005) 4 Competition Law Insight 8.

deliver on the main appeal. It will also either confirm or update the current compulsory licensing doctrine followed by the Commission and the ECJ in relevant cases. Even though the CFI President did not side with one of the two parties (he merely had to decide whether the *prima facie* requirement was satisfied) he did point out that the ECJ's judgment in *IMS Health* (which was delivered soon after the March 2004 Decision) uses the term 'sufficient conditions', which indicates that in his view the argument should be won by Microsoft.<sup>45</sup> Last but not least, in support of its argument that the *IMS Health* conditions had not been satisfied, Microsoft claimed that its refusal to license its interoperability information was justified because the latter was valuable and legally protected (Microsoft had repeatedly claimed that the specifications were protected by copyright and the protocols themselves were protected by patents and trade secret law), as opposed to the information withheld in *Magill* and *IMS Health*, which though protected by copyright was of small value. The President conceded there was a value difference between the two types of information, but said it was for the judges in the main appeal to decide whether this should have any bearing on applying the compulsory licensing doctrine.

Turning to Microsoft's arguments which attempted to prove that the company would be harmed as a result of the interoperability remedy, the President said that it was not necessary in the present case to examine whether the protocol specifications were protected by copyright and parts of the protocols were patented; however he did accept that, if Microsoft was indeed the holder of these intellectual property rights, obliging the company to license the specifications was a breach of its intellectual property rights. Nevertheless, the President added that such a breach did not necessarily cause a serious and irreparable damage. He found that Microsoft had not managed to demonstrate that the information disclosure remedy caused serious damage. In particular, its claim that disclosing the specifications would have a big financial cost for the company was unfounded: Microsoft would receive royalties from third parties wishing to use the specifications, and in any case it could easily bear the cost of disclosing the interoperability information—in the US fiscal year of July 2002 to June 2003 the company's annual turnover was €30,701 million.<sup>46</sup>

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<sup>44</sup> *Microsoft v Commission* (n 42) paras 88 and 201.

<sup>45</sup> *ibid* para 206 citing para 38 from *IMS Health*. C-418/01 *IMS Health GmbH & Co OHG v NDC Health GmbH & Co KG* [2004] ECR I-5039.

<sup>46</sup> The President of the CFI cited recital 1 of the March 2004 Decision. *Microsoft v Commission* (n 42) para 257.

The President also found that the actual use (as opposed to disclosure) of Microsoft's specifications by its competitors would not cause Microsoft serious and irreparable damage. He refuted all three arguments put forward by Microsoft on this issue. First, Microsoft had claimed that the disclosures would lead to 'dilution' of the interoperability information: licensees might put the specifications in the public domain, and also there was no way of checking whether the specifications would be used after the March 2004 had been annulled. The President dismissed this argument. Microsoft could include in the specifications licence confidentiality clauses and also penalty clauses which, should the March 2004 Decision be annulled, would prevent licensees from releasing work group server OSs implementing the specifications.

Secondly, Microsoft had claimed that it would incur serious and irreversible damage because competing products implementing the disclosed specifications would remain in the distribution channel after the March 2004 Decision had been annulled. Not so, said the President. The damage would be quickly reversed, as such products would either be bought by consumers or would quickly become technologically obsolete. And in any case, Microsoft had the option of preventing competing server OSs from being compatible with future versions of the Windows OS by altering the latter's server to server communication protocols.

Microsoft's third argument was that competitors might clone its products. It was also rejected by the CFI, as the March 2004 Decision explicitly stated that licensees would be allowed to use the specifications exclusively for developing their own specification-compliant interfaces which would enable their work group server OSs to be compatible with the Windows client PC OS and the Windows server OS; licensees would not be allowed to reproduce, adapt, arrange or alter the specifications.<sup>47</sup> Additionally, the Trustee appointed by the Commission pursuant to the March 2004 Decision would ensure that licensees respect this limitation.

Fourthly, Microsoft had claimed that the interoperability remedy would require it to fundamentally change its business policy: the company would be forced to license the specifications, would face difficulties with improving the protocols in question when releasing future versions of Windows products (as commercial reality would force Microsoft to ensure backward compatibility with competitors' products developed on the basis of the disclosed specifications), and would need to devote substantial resources in 'hardening' the protocols

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<sup>47</sup> *ibid* para 288. The President of the CFI cited recitals 1003-1004 of the March 2004 Decision.

before releasing their specifications.<sup>48</sup> All three arguments relating to Microsoft's forced change of business policy were rejected. Prior to the March 2004 Decision, Microsoft had already expressed its willingness to widely license some of its interface protocol specifications.<sup>49</sup> The arguments relating to improving and hardening the licensed protocols were dismissed on the basis that the US Settlement, which also required disclosure and licensing of protocol specifications, had not created similar problems for the company.

The fifth and final argument put forward was that the March 2004 Decision would cause an 'irreversible development of market conditions', in the sense that competitors could study the disclosed specifications and come to understand and reproduce important aspects of how the Windows server OS was designed. The President dismissed the argument because Microsoft had failed to produce sufficient factual evidence.

#### *The WMP unbundling remedy*

Having rejected Microsoft's appeal to suspend the interoperability remedy, the President examined the Windows Media Player untying remedy.<sup>50</sup> Two of the Microsoft's arguments—that the remedy was disproportionate and infringed Article 13 of the TRIPS Agreement—were dismissed because in the President's view they had not been appropriately substantiated. However, three other arguments convinced the President that Microsoft had a *prima facie* case in contesting the legality of the Commission's finding that the WMP tying practice was abusive. First, in previous tying cases the Commission and the ECJ had found tying to be abusive when the practice foreclosed the market to competitors; however, in the March 2004 Decision the Commission admitted that consumers were in fact able in some cases to download from the internet for free media players developed by Microsoft's competitors. The Commission based its conclusion on a prospective analysis of the risks presented to competition as a result of the tying, and therefore deviated from previous case law on tying. In particular, the March 2004 Decision

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<sup>48</sup> *ibid* paras 144-145. Microsoft had claimed it would be obliged to 'harden' the protocols (ie add code to them and carry out substantive additional testing) because disclosing the specifications of the protocols could lead to malfunctions, crashes and security risks in competing server OS products implementing the specifications.

<sup>49</sup> Microsoft had stated in a press release that it plans to actively promote licensing of protocols covered in the US Settlement as well as offer wider rights than the Settlement envisaged. Additionally, in negotiations with the Commission during its investigation which led to the March 2004 Decision the company said it was prepared to disclose more interoperability information than that eventually required by the Decision. *Microsoft v Commission* (n 42) paras 299 and 302.

<sup>50</sup> Tying and bundling are used interchangeably in this chapter.



found that the anti-competitive effect of the tying was a result of indirect network effects: as all Windows OS are equipped with WMP, content providers and software application manufacturers had a strong incentive to design their products so that they are compatible with WMP; consequently, client PC users would soon stop buying or using any media players apart from WMP. From Microsoft's point of view, the indirect network effect theory was novel and unlawful. Secondly, the Commission had failed to examine thoroughly Microsoft's claim that tying the WMP to the Windows OS was part of a 'basic design concept' which had positive standardisation effects; therefore the tying practice was objectively justified. Thirdly, WMP was not a distinct product from the Windows client PC OS: for many years Microsoft and other software manufacturers had integrated certain media functionalities in their client PC OS products.

Turning to whether the unbundling remedy caused Microsoft to suffer serious and irreparable damage, the President rejected all arguments put forward by the applicant. The first argument was that the remedy forced Microsoft to abandon its basic design concept for the Windows OS, which, according to Microsoft, was a uniform and well-defined platform designed to run applications (written by Microsoft or its competitors) compatible with its current or previous versions. The President held that the research and development costs which the company had to undertake to create a WMP-free version of Windows cannot be taken into account when assessing the damage suffered by the applicant.<sup>51</sup> Furthermore, the applicant did not submit sufficient evidence to back its claim that marketing two different versions of Windows would reduce the OS's appeal to consumers; or to back the claim that third parties would no longer design products for the Windows platform. In any case, should the March 2004 Decision be annulled, Microsoft could easily distribute WMP to all consumers who had bought the unbundled Windows version by means of offering a relevant update through its website. This way, any adverse effect to its Windows basic design concept would be completely reversed. The second argument put forward by Microsoft was that, by removing the WMP component, the Windows OS would malfunction and certain applications and websites which call upon functionalities of the WMP would not work properly; these two problems would damage Microsoft's reputation as a developer of quality software products. The President of the CFI held that there was sufficient evidence that all these problems would be solved to a reasonably large extent by installing a third-party media player in WMP's place.



*Aftermath of the interim relief appeal*

Having failed to substantiate that the remedies imposed by the March 2006 Decision would cause serious and irreparable damage, Microsoft's interim measures appeal was rejected. Microsoft chose not to appeal against the Order to the President of the ECJ: an appeal could only be based on points of law, and the parts of the Order rejecting Microsoft's arguments (ie parts where the President examined whether the remedies would cause serious and irreparable damage) were predominantly based on facts rather than points of law. Additionally, an appeal against the Order would not have suspended the latter or the remedial part of the March 2004 Decision. It is safe to assume that these two reasons led Microsoft not to appeal against the Order.

After the Order was published, Microsoft did release an unbundled version of its Windows client PC OS; however, it disclosed interoperability information which was not complete or accurate. As a result, on 12 July 2006 the Commission adopted a decision which imposed on Microsoft a fine of €208,5 million for non-compliance with its obligations.<sup>52</sup> The same decision stated that, if Microsoft did not fully comply with the interoperability remedy by 31 July 2006, it would face a daily payment of up to €3 million starting from 12 July of the same year.

### 3 THE CONCEPT OF DOMINANCE

Competition law does not condemn, as such, the existence of a dominant position which might simply be the result of innovation and success. Nor does competition law prohibit a dominant company from competing on the market in which it is active, or from extending its activities to new markets. Holding a dominant position is not prohibited. What is prohibited, however, is the use, or rather abuse, of this dominant position with the intention to drive competitors out of the market or to impose arbitrary conditions on customers. Article 82 EC places a special responsibility on dominant companies.<sup>53</sup> In summary, dominant companies have to be more

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<sup>51</sup> The President of the CFI justified this view by citing Case C-213/91 *R Abertal & Others v Commission* [1991] ECR I-5109 para 24. *Microsoft v Commission* (n 42) para 413.

<sup>52</sup> European Commission 'Competition: Commission imposes penalty payment of €280.5 million on Microsoft for continued non-compliance with March 2004 Decision' Press Release IP/06/979 (12 July 2006).

<sup>53</sup> See notably Case 322/81 *Nederlandsche Banden-Industrie Michelin v Commission* [1983] ECR 3461 para 57; Case T-228/97 *Irish Sugar v Commission* [1999] ECR II-2969 para 112 and more

careful than others when competing on the market. The most important concern from a competition law point of view is that dominant companies must not engage in exclusionary conduct—in other words conduct which is capable of excluding competitors from the market or preventing new entries to the market.<sup>54</sup>

Dominance exists when a company can behave independently of competitors or customers, namely when it can take pricing decisions without being constrained by competition. The ECJ has defined a dominant position as ‘a position of economic strength enjoyed by the undertaking which enables it to prevent effective competition being maintained on the relevant market by affording it the power to behave to an appreciable extent independently of its competitors, its customers and ultimately of the consumers.’<sup>55</sup> The Commission discussion paper on the application of Article 82 to exclusionary abuses, published in December 2005, confirms that for dominance to exist the undertakings concerned must not be subject to effective competitive constraints.<sup>56</sup> The resultant substantial market power is the power to influence prices, output, innovation, the variety or quality of goods, or other parameters of competition on the market for a significant period of time. It is not a condition of dominance for the purposes of Article 82 that competition has been eliminated.

The market share held by the company in question is certainly a factor in determining its economic power and dominance. Even though this is not a litmus test, high market shares which have been held for some time can give a strong indication of dominance.<sup>57</sup> However, the importance of market shares should not be exaggerated. If for example the barriers to expansion faced by existing competitors and the barriers to entry faced by potential competitors are low, then the high market share of an undertaking may not be indicative of dominance. Market shares thus serve only as an indication of dominance. The existence of a dominant position may be

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recently, Case T-219/99 *British Airways v European Commission* [2003] ECR II-5917 para 242 where the CFI held that: ‘Therefore, whilst the finding that a dominant position exists does not in itself imply any reproach to the undertaking concerned, it has a special responsibility, irrespective of the causes of that position, not to allow its conduct to impair genuine undistorted competition on the common market.’

<sup>54</sup> Case 85/76 *Hoffmann-La Roche v Commission* [1979] ECR 461.

<sup>55</sup> *ibid.*

<sup>56</sup> Commission of the European Communities ‘DG Competition discussion paper on the application of Article 82 to exclusionary abuses’ (December 2005)  
<<http://ec.europa.eu/comm/competition/antitrust/others/discpaper2005.pdf>> (accessed 21 March 2006).

concluded from several factors which, taken separately, are not necessarily determinative.<sup>58</sup> A copyright or similar monopoly right is an obvious advantage for the player who holds it and a barrier to an entrant. Superior technology has been held to be an indicator of dominance in a number of cases. It was one of the factors conferring dominance to United Brands even though the company had a market share of 40 to 45 per cent, and it was one of the reasons that the acquisition by Tetra Pak of a firm in order to acquire the only technology to threaten it was held an abuse in *Tetra Pak II*.<sup>59</sup>

#### 4 ABUSIVE LICENSING TERMS DICTATED BY A DOMINANT UNDERTAKING

### 4.1 Excessive, discriminatory and predatory pricing

In the context of software licensing, excessive, discriminatory and predatory pricing takes place when a computer program author determines the royalties that must be paid by his or her licensees. This applies to both distribution licences and copyright licences for computer programs.

A dominant position can be abused by conduct which is directed against an immediate business partner who is not a competitor or potential competitor. For example, a dominant company can abuse its position by charging excessively high prices. Article 82 EC states that an abuse can take the form of ‘directly or indirectly imposing unfair purchase or selling prices’ to the customers, or by imposing unjustified business conditions on their contract partners.

Notwithstanding this explicit mention in the EC Treaty, the Commission has been reluctant to pursue excessive pricing cases and has even stated that its role is ‘not normally [to] control or condemn the high level of prices as such’.<sup>60</sup> Such a statement might have been prompted by the fact that control of excessive pricing is notoriously controversial.

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<sup>57</sup> The Court held in *Akzo* that a market share of 50 per cent is evidence of the existence of a dominant position. Case 62/86 *Akzo Chemie v Commission* [1991] ECR 3359.

<sup>58</sup> See *Hoffmann-La Roche* (n 54) para 39.

<sup>59</sup> Case C-333/94 *Tetra Pak International SA v Commission* [1996] ECR I-5951 (*Tetra Pak II*).

<sup>60</sup> XXIV EC Annual Report on Competition Policy (1994) para 207.

No single test has been endorsed by the ECJ or the Commission for assessing when a price is excessive, but so far four possible tests—which are often used simultaneously in the same case—have been suggested: (a) a price/cost comparison;<sup>61</sup> (b) the ‘economic value’ of the product or service;<sup>62</sup> (c) a comparison of the dominant firm's price with prices in competitive markets;<sup>63</sup> and (d) a price comparison in different geographic areas.<sup>64</sup>

There is no single test, but the ‘cost-based’ approach remains to this day the basic test for excessive pricing under Community law. The ECJ held in *United Brands* that a price is excessive when it has no reasonable relation to the economic value of the product supplied.<sup>65</sup>

Excessive pricing in an IP licence may be contrary to Article 82. The application of Article 82 to the charges exacted by a national copyright management society (SACEM) from a discotheque in France for playing its records in public was considered in the *Sacem* case.<sup>66</sup> The ECJ held that it was possible that royalties charged (or other conditions imposed) could infringe Article 82 by being unfair, but was not asked to rule on the level of royalties. The ECJ did, however, consider what may amount to excessive pricing in the context of copyright licensing in *Ministère Public v Tournier*.<sup>67</sup> The ECJ held that excessive or disproportionate costs should not be taken into account in determining the reasonableness of prices. Further, the Commission and courts may compare prices with those charged in other Member States to decide whether the prices are excessive. Thus in *Ministère Public v Tournier* and in *Lucazeau v SACEM*<sup>68</sup> in relation to the royalty fees charged by the French copyright management society to discothèque operators, the ECJ noted that where a dominant undertaking charges prices at a level appreciably higher than those charged in other Member States, this might be an abuse: ‘[i]n such a case it is for the undertaking in question to justify the difference by reference to objective dissimilarities between the situation in the Member State concerned and the situation prevailing in all the other

<sup>61</sup> Case 27/76 *United Brands v Commission* [1978] ECR 207; Case 26/75 *General Motors v Commission* [1975] ECR 1367. See also Commission decision *Deutsche Post AG* [2001] OJ L331/40.

<sup>62</sup> See Case 26/75 *General Motors v Commission* [1975] ECR 1367.

<sup>63</sup> Case 30/87 *Corinne Bodson v Pompes funèbres des régions libérées* [1988] ECR 2479.

<sup>64</sup> Cases 110/88 *Lucazeau v SACEM* [1989] ECR 2811 and 395/87 *Ministère Public v Jean-Louis Tournier* [1989] ECR 2521.

<sup>65</sup> Also see Case 26/75 *General Motors Continental* [1975] ECR 1367 para 12.

<sup>66</sup> Case 402/85 *Basset v SACEM* [1987] ECR 1747.

<sup>67</sup> Case 395/87 *Ministère Public v Jean-Louis Tournier* [1989] ECR 2521.

<sup>68</sup> Joined Cases 110, 241 & 242/88 *Lucazeau v SACEM* [1989] ECR 2811.

Member States'.<sup>69</sup> Further, in *Tournier* the ECJ noted that excessive or disproportionate costs born by a monopoly undertaking (ie operating inefficiently due to the lack of competition) should not be taken into account: 'the possibility cannot be ruled out that it is precisely the lack of competition on the market in question that accounts for the heavy burden of administration and hence the high level of royalties'.<sup>70</sup> Another comparison was used in the *Bodson* case, where the ECJ compared the prices charged on a competitive market with those charged where there was a monopoly.<sup>71</sup>

The ECJ has accepted in principle that owners of intellectual property rights (which, after all, are rights to exclude and therefore gain a monopoly price) can charge more.<sup>72</sup> However, it has noted that it might still be an infringement for an intellectual property right holder to charge excessive prices.<sup>73</sup>

Discriminatory pricing is the supply or purchase of goods or services at different prices and the charging of identical prices for products which entail different costs. Price discrimination is an abuse specifically mentioned in Article 82(c) EC Treaty: 'applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage' may constitute dominance abuse.

Discriminatory pricing is often practised in order to increase the profits of the supplier by charging higher prices to groups of customers willing to pay them. However, it can also be practised for anti-competitive reasons—for instance, the desire to penetrate a new market by reducing prices in that market, or the desire to eliminate a competitor.

It is discriminatory for a dominant company to charge different prices to customers who are in the same or similar circumstances unless there is an objective justification. An objective justification is a valid economic reason (eg different costs; economies of scale; the buyer provides a service not provided by other customers etc). Discriminatory pricing can also occur where the same price is charged to customers who are in different circumstances (for example,

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<sup>69</sup> *Ministère Public v Jean-Louis Tournier* para 25.

<sup>70</sup> *ibid* para 42.

<sup>71</sup> Case 30/87 *Corinne Bodson v SA Pompes funèbres des régions libérées* [1988] ECR 2479.

<sup>72</sup> Cases 24/67 *Parke Davis v Probel* [1968] ECR 55 and 53/67 *Renault Maxicar* [1988] ECR 6039.

<sup>73</sup> Case 238/87 *Volvo v Veng* [1988] ECR 621 para 9 and *Renault Maxicar* para 15.



same prices inclusive of transport costs are charged to customers regardless of where each customer is situated).

Predatory pricing occurs when a dominant undertaking charges prices which are lower than the production cost of a good or service so as to force weaker competitors to leave the market.<sup>74</sup> According to the ECJ, predatory pricing is present when prices are set lower than the average variable cost of the product;<sup>75</sup> when prices are above the average variable cost but below the average total cost, predatory pricing is present only if it can be proven that the undertaking's intention was to eliminate or inhibit competition.<sup>76</sup> Under US law, predatory pricing can only be substantiated if it is possible to show that the undertaking can recoup any losses that occurred while maintaining the prices low: once weaker competitors have exited the market, the predator raises the prices so as to recoup the losses. The ECJ has never explicitly said that recoupment is necessary so as to prove that the undertaking's pricing policy was abusive. However, in *Tetra Pak II*, where the ECJ found that Tetra Pak had abused its dominance by engaging in predatory pricing, it was held that '[...]it would not be appropriate, in the circumstances of the present case, to require in addition proof that Tetra Pak had a realistic chance of recouping its losses. It must be possible to penalize predatory pricing whenever there is a risk that competitors will be eliminated.'<sup>77</sup> The ECJ believed that, given Tetra Pak's big market share (in effect, the company was 'super dominant') and the fact it had abused its dominance by a series of acts which fell foul of Article 82, it was not necessary to prove recoupment. The ECJ's phrasing opened up the possibility that, even though in *Tetra Pak II* recoupment did not need to be substantiated, in future cases it might be a factor in proving that a certain pricing policy is predatory.

In the context of software copyright licensing, the question of predatory pricing can be of particular interest as far as GNU General Public Licenses (GPLs) are concerned. As mentioned in section 3 of chapter 4, when a computer program is licensed through a GPL, no fee can be charged. Does this mean that a GPL-licensed program which happens to be highly innovative and therefore renders its author dominant in the relevant narrow product market is actually sold at a predatory price? It is submitted here that the answer is negative, on two counts. First, any such dominance (which is actually rarely achieved by open source software producers, as

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<sup>74</sup> *Hoffmann-La Roche v Commission* (n 54).

<sup>75</sup> *AKZO* (n 57) and *Tetra Pak II* (n 59).

<sup>76</sup> *Tetra Pak II*.

<sup>77</sup> *ibid* para 44.

consumers often prefer to pay for well-known and solidly-supported proprietary software rather than for software available for free) is bound to be short-lived. Through the GPL, users of the dominant open source software will have access to its source code and will quickly replicate it or offer a modified version of it to third parties. Secondly, while this brief period of dominance lasts, it is impossible for the author to recoup any ‘losses’ incurred by the zero royalties: under the GPL the software has to remain royalty-free, whereas the author has no exclusivity in offering commercial maintenance services or manuals for the software—everyone is allowed to access the source code and thus offer alternative services and literature relating to the software. If we accept that *Tetra Pak II* implied that recoupment may be a necessary element of predatory pricing in certain cases, it becomes clear that GPLs do not pose predatory pricing concerns.

The issue of predatory pricing in GPLs recently came before the US Court of Appeals in *Wallace v IBM*, a case already discussed in section 4.3.5 of chapter 4. Wallace argued that IBM, Novell and Red Hat had breached antitrust laws by offering the Linux OS for free.<sup>78</sup> In his view, they had engaged in predatory pricing and therefore effectively prevented him from offering a proprietary alternative to Linux (one he would create from scratch or one derived from Linux); the companies had ‘conspired’ amongst themselves to eliminate competition in the OS market by offering Linux for zero royalties. Therefore, according to Wallace, they had breached Section 1 of the Sherman Act. Even though the case did not concern dominance and section 2 of the Sherman Act, the court’s findings could be applied by analogy to GPLs offered by a dominant undertaking. The Court of Appeals dismissed Wallace’s arguments, as *IBM et al* never had the opportunity to eliminate competition or recoup losses. Additionally, it stressed that Linux never drove proprietary OS products from the market: far more people use Microsoft Windows and Apple’s OS than Linux. The judgment’s last sentence is a good omen for the open source software movement: ‘The GPL and open-source software have nothing to fear from antitrust laws’.

## 4.2 Tying

As far as software licensing is concerned, tying mainly occurs when maintenance is tied to a computer program or when two programs are tied together. Tying per se is not anti-competitive;

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<sup>78</sup> *Daniel Wallace v IBM Corp, Red Hat Inc and Novell Inc* 467 F 3d 1104 (7<sup>th</sup> Cir 2006).

it occurs very often in many industry sectors, from mobile phone manufacturing (where a camera may be integrated in a mobile phone) to car manufacturing (where a car may come with air conditioning). But tying can be anti competitive if the tying product holds a dominant position in the relevant market and the tying arrangement seriously impedes competition in the market of the tied product. Article 82(d) prohibits 'making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by nature or according to commercial usage, have no connection with the subject of such contracts', to the extent that such behaviour may affect trade between Member States.

Maintenance tying is very common and typically an extra fee is charged for this service. It is mostly justified on the basis that maintenance and error correction provided by third parties may not be satisfactory, the program's performance may be compromised, and eventually the developer's commercial reputation will be jeopardized. However, if the licensee can prove such justifications to be false, a dominant firm tying maintenance to its software may be violating Article 82 by foreclosing the relevant maintenance market.

Tying a computer program to a another computer program which is the dominant product in its market may also violate Article 82. The very nature of computer programs makes the anti-competitive effect of such tying difficult to substantiate. Most tying cases tried by the ECJ involved tangible products such as nails and nail guns or carton-filling machines and cartons. With software, it is often difficult to decide where the tied product ends and the main (dominant) product starts, as code for the two products will typically be intertwined. As discussed in chapter 2 of the thesis, a computer program is in fact a collection of other smaller computer products, the modules it is made of. Therefore, in a sense every distribution or copyright licence to a computer program entails a certain degree of tying. Dominant players such as Microsoft are well-aware of this intrinsic quality of software and are keen to exploit it. Both in *US v Microsoft* and in the Commission's investigation against Microsoft, the company claimed that Internet Explorer and WMP were not really separate products tied to Windows; instead, the two were browsing and media functionalities of the Windows OS.

Before exploring further Microsoft's WMP tying arrangements, it is important to review the leading cases which have developed the ECJ's tying doctrine under Article 82. Even though they do not concern software, they do provide examples of situations in which a dominant player abuses his or her position by engaging in tying and illustrate the ECJ's views on tying.

#### 4.2.1 Case law on tying prior to the March 2004 Decision

In *Hilti*, Hilti sold to customers nail cartridge strips for its nail guns only if they agreed to also buy from it the nails which would they would need for the cartridges (and which they could also buy from other sources). Hilti's justification was that this way customers would not end up buying incompatible nails, which would cause safety concerns. The CFI rejected this reasoning: a dominant undertaking cannot justify tying on the basis of its desire to eradicate products which it considers to be dangerous or inferior to its own products.<sup>79</sup>

In another case, Tetra Pak obliged buyers of its carton-filling machines to also buy cartons (used for packaging liquids such as milk), related know-how, servicing and training. The company, which was dominant owing to patents it held to the carton-filling machines, argued that the bundle of products and services it offered was a single integrated distribution system, one which ensured its customers' health and safety. The Commission found dominance abuse and so did the CFI.<sup>80</sup> The CFI based its judgment on three arguments. First, it examined a similar product market where containers and filling machines were sold separately, notwithstanding the need for technical compatibility; this proved that Tetra Pak's 'integrated system' was not consistent with commercial practice. Second, the CFI found that the two products had entirely distinct natural characteristics and were produced through entirely different processes. And finally, the Court dismissed the health and safety argument on the grounds that any health and safety concerns should have been addressed to the appropriate regulatory authorities.

The common denominator of *Hilti* and *Tetra Pak II* was that the ECJ is unlikely to accept allegations that two physically distinct products constitute an integrated unit for health and safety reasons. This part of the doctrine is useful for many industry sectors, but not terribly useful for the software industry, where substantiating that two different pieces of software are distinct products is very difficult. However, the two cases showed that the list of abusive practices set out in Article 82(d) is not exhaustive, and this is of interest to software tying. Even though the provision refers to two products which have no connection to one another in terms of

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<sup>79</sup> Case T-30/89 *Hilti v Commission* [1991] ECR II-1439, confirmed by the ECJ in Case 53/92 P *Hilti v Commission* [1994] ECR I-667.

<sup>80</sup> Commission Decision 92/163/EEC (*Tetra Pak II*) [1992] OJ L72/1; Judgment by the CFI, Case T-83/91 *Tetra Pak v Commission* [1994] ECR II-755; confirmed by the ECJ in Case C-333/94 P *Tetra Pak v Commission* [1996] ECR I-5951 (*Tetra Pak II*).

nature of commercial usage, in light of *Hilti* and *Tetra Pak II* tying abuse may arise even in cases where two products are in fact linked by nature or commercial usage; this was the case with nail gun cartridges and nails and this was also the case with cartons and carton-filling machines. Additionally, the two cases set down a set of five conditions which need to be present for tying to violate Article 82. These conditions are analysed in the next section of this chapter in the context of *Microsoft*.

#### 4.2.2 Tying in the March 2004 Decision

In the March 2004 Decision, the Commission applied the conditions laid out in *Hilti* and *Tetra Pak II* to the facts surrounding Microsoft's tying arrangements and concluded that indeed Microsoft had abused its dominance by tying WMP to the Windows client OS. *Microsoft* remains the only case dealing with bundling in software licences which has resulted in a Commission decision; therefore, the Commission's findings on the issue are worth exploring. Below follows the list of the five conditions which the Commission found had been satisfied and which therefore proved that Microsoft's tying licensing arrangement violated Article 82.<sup>81</sup>

*i. Tying product was dominant*

As already mentioned earlier in this chapter, Windows (the tying product) enjoyed a quasi monopoly of 95 per cent market share in the market for PC OSs.

*ii. Tying and tied product were separate*

WMP is an application used for playing streamed and downloaded digital audio and video content. According to the Commission, it is a distinct product from the Windows OS. This is verified by the fact that separate media players were available and that there was consumer demand for these. The assertion is true; notwithstanding Microsoft's tying arrangement, consumers continued to download other media players from websites maintained by software developers such as Apple or RealNetworks. The assertion was further supported by the fact that Microsoft distributed versions of WMP (not tied to Windows) for Apple's Mac and Sun's

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<sup>81</sup> Microsoft's violation of Article 82 via tying WMP to Windows is discussed in D Ridyard 'Tying and bundling—cause for complaint' (2005) 26 ECLR 316; J Art and G McCurdy 'The European Commission's Media Player Remedy in its Microsoft Decision: Compulsory Code Removal Despite the Absence of Tying or Foreclosure' (2004) 25 ECLR 692; and M Dolmans and T Graf 'Analysis of Tying under Article 82 EC: The European Commission's Microsoft Decision in Perspective' (2004) 27 World Competition 225.



Solaris client OS.<sup>82</sup> The ‘commercial demand’ criterion had been used in *Hilti and Tetra Pak II*, where the CFI and the ECJ had stressed that producers other than Hilti and Tetra Pak also offered their own versions of the tied products.

Microsoft denied that WMP and Windows were separate products, on the grounds that for many years Microsoft and other software developers had been integrating media functionalities in their PC OSs—this argument was repeated in its interim relief appeal against the March 2004 Decision. However, the truth was that prior to releasing the WMP and Windows bundle, Windows encompassed merely a media functionality and not a fully-fledged media player. The company also claimed that demand for media players on their own was low and that the integration of Windows and WMP was beneficial for customers; one cannot fail to notice that this latter argument does not constitute an objective criterion for deciding whether the two products were separate.

*iii. Customers were not offered a choice*

OEMs and end users who wished to acquire Windows were given only one choice: buy Windows together with WMP. OEMs could not obtain a distribution licence to Windows alone and this coercion was eventually passed on (in the context of the Windows copyright licence) to end users who bought PCs from the OEMs. As for end users who acquired shrink-wrapped versions of Windows directly from retail shops, the coercion applied directly to them through the copyright licence.<sup>83</sup>

*iv. Tying foreclosed competition in the market of the tied product*

The Commission’s explanation of how Microsoft’s bundling practice fulfilled the foreclosure condition was very controversial; as already mentioned in section 2.2.2 the explanation was vigorously contested by Microsoft in its two appeals against the March 2004 Decision.<sup>84</sup>

In classic tying cases, the ECJ found that the tying practice examined foreclosed the tied product’s market to competition. For example, by selling nails together with nail cartridges, Hilti foreclosed the relevant nail market to other companies producing nails compatible with these cartridges. In the March 2004 Decision the Commission did not establish that the market for

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<sup>82</sup> March 2004 Decision paras 803 onwards.

<sup>83</sup> *ibid* para 827.

<sup>84</sup> The Commission dealt with WMP tying in paras 835-943 of the March 2004 Decision.

Windows-compatible media players was foreclosed to Microsoft's competitors. Microsoft had not become dominant in that market. Largely due to WMP's performance problems, some end users downloaded other media players which were available for free over the internet, even though they already had WMP installed on their PCs.<sup>85</sup> Apple's QuickTime and RealNetwork's RealPlayer were examples of media players acquired this way.

However, the Commission found that Microsoft's tying arrangements had the potential to foreclose the relevant market. By pre-installing WMP on PCs manufactured by OEMs, Microsoft kept to itself the most efficient distribution channel. Given that over 95 per cent of PCs worldwide carry Windows, WMP became equally ubiquitous. Microsoft admitted that technically it was impossible for OEMs and end users to uninstall WMP from Windows: Microsoft had intertwined the WMP and Windows codes to such an extent that removing the WMP code caused parts of Windows and third party software installed on top of Windows to malfunction or not function at all. Microsoft did not forbid OEMs or end users from adding another media player to PCs. However, the WMP bundling was a serious disincentive for OEMs to install another player.

OEMs were reluctant to ship PCs pre-installed with third party players. Media players which were not distributed for free were out of the question, as no customer would be willing to pay extra for an application which was already included with Windows. Installing media players distributed for free was not an attractive option either, as it would increase customer support and training costs for OEMs. Even when a third party player was installed on a PC and set as the default player, WMP would still launch automatically when users would use Internet Explorer for downloading or playing certain types of media files; this was bound to confuse some users and result in increased customer support costs.

During the Commission's investigation, Microsoft had claimed that its competitors were still able to use downloading as their distribution channel. Indisputably, downloading is the most efficient channel after OEM pre-installation as far as media players are concerned. Some Windows users downloaded free players such as QuickTime and RealPlayer. Nevertheless, this applied only to some home users—not all, as some of them viewed downloading new software

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<sup>85</sup> The Commission cites a study produced by NERA (an economic consultancy), in which reviews of various media players are compared. RealPlayer took first place in eight of the available fifteen reviews, whereas WMP took first place in two of them. See March 2004 Decision paras 949-950.

as a complicated process. Business customers on the other hand typically buy from OEMs PCs pre-installed with Windows and prevent their employees from downloading software on their desktops.

For all the reasons described above, WMP became the leading player in the media market. In the Commission's view the market was very likely to 'tip' towards WMP and make that product dominant. This view—which Microsoft branded 'speculative foreclosure theory'—was supported by the fact that WMP enjoyed indirect network effects: as WMP was ubiquitous, more and more content would be encoded in WMP format and this in turn would make users more and more prone to use WMP to play content.

As discussed earlier in this chapter, Microsoft argued in its two appeals against the March 2004 Decision that the speculative foreclosure theory was not in line with classic tying case law. However, the Commission said in its decision that the theory had been applied in three recent CFI judgments which applied Article 82 to situations involving exclusivity and foreclosure.<sup>86</sup> In these judgments, the CFI said that, in a case involving exclusionary practices it is sufficient to establish that a conduct tends to restrict competition or is likely to have such an effect or is capable of having such an effect—it is not necessary to establish that the exclusionary practice has actually already resulted in foreclosure of the market to competitors.

*v. Tying was not justifiable*

Microsoft had claimed that integrating WMP into Windows created two efficiencies which outweighed any possible anti-competitive effects that bundling the two products together might have had.<sup>87</sup> The first argument was that the bundling created efficiencies related to distribution. By acquiring an OS and a media player pre-installed on their new PC, end users would avoid confusion and save time by not having to decide which media player they should acquire. The Commission retorted that this was true, but there was no reason why WMP rather than any other player should be pre-installed in the PC; OEMs should be free to choose the player they want to install on their products.

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<sup>86</sup> Case T-65/98 *Van den Bergh Foods v Commission* [2003] ECR II-4653; Case T-203/01 *Michelin v Commission* [2003] ECR II-4071; and Case T-219/99 *British Airways* [2003] ECR II-5917.

<sup>87</sup> Microsoft's justifications for tying WMP and the respective rebuttals by the Commission are in paras 955-970 of the March 2004 Decision.

Microsoft's second argument was that by installing WMP in pretty much all PCs, it helped independent software developers to create applications which 'hooked' on APIs exposed by WMP. In other words, Microsoft was actually encouraging innovation in the software industry. The Commission answered that media players in general (and not just WMP) exposed APIs which could be used by other applications and in fact software developers tended to tailor their applications (more specifically multimedia-enabled applications) to various existing media players, including RealPlayer. Microsoft had not submitted to the Commission sufficient data which demonstrated that applications developers had a particular preference for WMP. Additionally, one could see Microsoft's argument related to API's exposed by WMP as an effort to sustain the applications barrier to entry protecting its dominance in the PC OS market.

#### **4.2.3 Thoughts on tying**

It has been submitted that, when deciding whether bundling by a dominant firm is anti-competitive, competition authorities should focus on the long-term effects of the practice on competition.<sup>88</sup> The discussion should not be focused on whether the two products comprising the bundle are separate, as this is a tricky and largely theoretical question. The question becomes particularly tricky when the two products bundled together happen to be computer programs. Nor should the discussion focus on the short-term anti-competitive effects that the tying may have. The crucial question should be whether the tying is likely to have long-term effects on competition.

In the case of WMP bundling, the short-term effect on competition was that Microsoft was pushing its competitors out of the market for media players; consumer choice was also restricted, as a result. Even though this creates concern, the focus should be placed on the possible long-term effect of WMP's tying: by pushing its competitors out the market, Microsoft ensured that in the long run no cross-platform applications would be created (applications relying on APIs exposed by rival media players) and therefore no-one would ever produce an OS able to challenge Microsoft's dominance in the client PC OS market.

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<sup>88</sup> Ridyard (n 81).

### 4.3 Other abusive licensing terms

The 1994 Microsoft Undertaking provides some insight into abusive terms—other than tying—which might be imposed on the licensee in the context of a software distribution licence.<sup>89</sup> Following a complaint by Novell in June 1993, the Commission looked into the Windows OEM licences offered by Microsoft at the time. The Commission was concerned that three of Microsoft's licensing practices excluded its competitors from the market for PC OS products. First, Microsoft used 'per processor' and 'per system' licenses. Under these, OEMs paid a royalty to Microsoft for practically all of the PCs they made, even if they installed non-Microsoft OSs on some of them. Secondly, Microsoft's licences included large 'minimum commitments' to pay royalties regardless of the number of Windows copies that the OEMs actually used. And finally, the distribution licences had an overly long duration.

The Commission believed that the cumulative effect of these terms would be to foreclose the market for PC OS products to all of Microsoft's competitors. The investigation closed with Microsoft agreeing to do the following: limit the term of OEM distribution licences to one year; refrain from entering into per processor licences; enter into per system licences only where it was clear that the OEM could simply name a new PC model and not have to pay a royalty on PCs of that model; refrain from imposing minimum commitments on licensees.

Based on the 1994 Microsoft Undertaking, it is safe to assume that licensing terms such as those described above (the ones that raised concerns on the part of the Commission) might not individually cause a dominance abuse but will probably do so if they are found cumulatively in a distribution license.

## 5 ARBITRARY REFUSAL TO LICENSE BY A DOMINANT UNDERTAKING

A dominant software developer's refusal to license his or her copyright in a computer program is a succinct example of the strain between intellectual property rights and competition. On the one hand, it is the developer's exclusive right to license or distribute the computer program if and as he or she wishes; on the other hand, if the developer happens to hold a dominant position, a

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<sup>89</sup> Microsoft Undertaking, Bulletin of the European Communities 7/8-1994 para 2.4.1. See J Faull and A Nikpay *The EC Law of Competition* (2<sup>nd</sup> edn Oxford University Press Oxford 2005) 625-626.



refusal to license may hinder innovation amongst other developers, restrict consumer choice and ultimately distort competition.

Refusal to license one's intellectual property right can cause problems in terms of competition in many industry sectors. However, in the context of the software industry a refusal to license a computer program or parts thereof—certain modules, interfaces, specifications etc—can have particularly serious ramifications. The software industry relies on compatibility: if a computer program cannot communicate with another, widely popular program, customers will not buy it. In chapter 2 of the thesis we examined at length the Community's view that interoperability amongst computer programs is essential for increasing the competitiveness of the European software industry; the decompilation right envisaged in article 6 of the Software Directive was intended to serve this purpose. However, decompilation is often not sufficient for unveiling the interfaces which are necessary for one program to connect seamlessly with another. If a licence of the required interface information is not forthcoming, the case may be that the proprietor should be forced to license it.

Refusal to license one's copyright to all or some firms is a valuable weapon which dominant players in the software industry often employ. Microsoft is of course the usual suspect: in *US v Microsoft* it refused to license to Sun Microsystems the API's exposed by Windows 95; in *Microsoft* it refused to license the communications protocols required for client PCs to talk to servers. Apple has also exhibited similar behaviour: as will be discussed later in this chapter, it refuses to license to anyone at all the interoperability information which would allow tracks acquired through rival music download retailers to play on its iPods.

Such behaviour can violate Article 82(b), which states that 'limiting production, markets or technical development to the prejudice of consumers' may constitute dominance abuse. In the context of applying this provision, the ECJ has held that under certain exceptional circumstances a dominant undertaking should be obliged to license its intellectual property rights. In the remaining parts of this section, we will discuss the case law which has developed the so-called 'exceptional circumstances doctrine'. Particular gravity will be given to the March 2004 Decision, which some claim has been inconsistent with previous ECJ judgments on compulsory licensing.

## 5.1 The exceptional circumstances doctrine prior to the March 2004 Decision

The leading cases discussing the exceptional circumstances doctrine were discussed briefly in section 6 of chapter 3 in the context of compulsory licensing of databases. A more comprehensive overview the ECJ case law on the issue will be provided here.<sup>90</sup>

One of the first cases to deal with abusive refusal to license was the Commission's investigation directed at IBM in the early 1980s, which has already been mentioned in section 3.6.3 of chapter 2 in the context of decompilation. The Commission issued a statement of objections to IBM, claiming that the company had breached Article 82. IBM, which at the time was the dominant OEM manufacturer, refused to license interface information which would allow its competitors to manufacture PCs compatible with software tailored to IBM PCs. The case never resulted in a Commission decision, as in 1984 IBM undertook to provide its competitors with interface information about its current and future PCs.<sup>91</sup> The IBM Undertaking remained in place for eleven years, during which period IBM granted numerous licences that allowed other OEMs to offer PCs in direct competition with IBM PCs.

Unlike the IBM investigation, many other cases resulted in Commission decisions and, more importantly, in ECJ judgments. The first of these cases was *Volvo v Veng*.<sup>92</sup> Volvo held the design right to spare parts for its cars and refused to license it to independent spare parts producers, even though they had offered to pay reasonable royalties. The ECJ found that refusing to license one's intellectual property right does not per se constitute an abuse of dominance. However, the ECJ continued, the refusal to license could be an abuse if some additional elements are present: for instance, the arbitrary refusal to supply spare parts to

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<sup>90</sup> The overview of ECJ case law on compulsory copyright licensing has been based on the following articles: S Anderman 'Does the *Microsoft* case Offer a New Paradigm for the "Exceptional Circumstances" Test and Compulsory Copyright Licenses under EC Competition Law?' (2004) 1 The Competition L Rev 1 <<http://www.clasf.org/CompLRev>> (accessed 30 November 2006); D Ridyard 'Compulsory Access Under EC Competition Law—a New Doctrine of "Convenient Facilities" and the Case for Price Regulation' (2004) 25 ECLR 669; D Kanter 'IP and Compulsory Licensing on Both Sides of the Atlantic—an Appropriate Antitrust Remedy or a Cutback on Innovation?' (2006) 27 ECLR 351;

<sup>91</sup> IBM Undertaking Bulletin of the European Communities 10-1984 para 3.4.1.

<sup>92</sup> Case 283/87 *Volvo v Veng* [1988] ECR 6211.

independent repairers, the stoppage of sales of spare parts for models which are still widely popular, or charging excessive prices for spare parts.

The next case was the first one to deal with the refusal of a dominant undertaking to license its copyright; it was also one of the most famous judgments ever handed down by the ECJ. Three Irish and British broadcasting companies refused to license their weekly television listings to Magill, a company which wanted to publish a comprehensive weekly television guide—it would have been the first publication of this kind in Ireland. The ECJ repeated *Volvo's* finding that the refusal to license one's intellectual property right is lawful and it held that, due to certain exceptional circumstances present in the case, the broadcasters' behaviour was in breach of Article 82. These were the three circumstances: (a) the refusal to license prevented the emergence of a new product for which there was a potential customer demand; (b) the refusal was likely to exclude all competition in the downstream market for TV program magazines; and (c) there was no objective justification for the refusal.

The exceptional circumstances doctrine introduced in *Magill* was good news for competition between Member States, but the judgment left three important questions unanswered. First, were the three circumstances cumulative? Secondly, which justifications qualify as objective? And thirdly, was the 'value' of copyright vested in the listings important? The listings were protected by copyright only in the UK and Ireland, and many wondered whether the ECJ's judgment would have been different had the copyright-protected information in question been the result of a bigger investment on the part of the copyright holders.

In three subsequent rulings—*Tiercé Ladbroke*, *Oscar Bronner* and *IMS Health*—the ECJ found that the exceptional circumstances under which licensing is mandatory are rarely present and it answered some of the questions left by *Magill*.<sup>93</sup>

In *Tiercé Ladbroke* the ECJ assessed a dominant player's refusal to license his copyright using the *Magill* conditions and stressed that abuse can be substantiated only if it prevents the emergence of a new product (and not just of a product replicating the product already offered by the copyright holder). *Oscar Bronner* dealt not with an intellectual property right but with

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<sup>93</sup> Cases T-504/93 *Tiercé Ladbroke v Commission* [1997] ECR II-923, C-7/97 *Oscar Bronner GmbH & Co v Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co KG* [1998] ECR I-7791 and C-418/01 *IMS Health GmbH & Co OHG v NDC Health GmbH & Co KG* [2004] ECR I-5039.

newspaper distribution system in Austria. The ECJ held that Mediaprint's refusal to allow Bronner to use its home distribution system was not an abuse of dominance: both companies published daily newspapers and having access to Mediaprint's distribution system was not indispensable for entering a downstream market. In other words, that judgment introduced the notion of indispensability to the *Magill* doctrine.

The ECJ's judgment in *IMS Health* answered some questions left from *Magill*, but certain aspects of the exceptional circumstances remained hazy. The judgment effectively applied the reasoning of *Oscar Bronner* to copyright (rather than distribution systems) and reiterated that refusal to licence rarely qualifies as dominance abuse.

IMS Health had devised a copyright-protected 'brick structure' for collecting and analysing sales of pharmaceutical products from all pharmacies in Germany. It sold the data it collected to pharmaceuticals, which used it for their sales and marketing activities. NDC, a competitor of IMS, asked for a licence to the brick structure but was refused. In turn, NDC devised a similar system for collecting the same data, but its efforts to sell the data to pharmaceuticals failed: the brick structure had become the de facto industry standard for analysing pharmaceutical sales in Germany. In the meantime, IMS initiated proceedings before a German court because it believed that the system devised by NDC infringed its copyright in the brick structure system. The German court asked the ECJ whether IMS's refusal to license had been an abuse of its dominant position.

The ECJ said that the conditions laid out in *Magill* were cumulative, but not exhaustive. This means that they are sufficient but not necessary for establishing that a refusal to license is a dominance abuse—depending on the facts of the case, different conditions may apply. In the case at hand, the ECJ said that IMS should be obliged to license the brick structure to NDC if the following exceptional circumstances are present: (a) the copyright license is indispensable for accessing a market; (b) a refusal to license is likely to eliminate all competition on that market; (c) the refusal to license prevents the emergence of a new product or service which is different from (and not just a duplicate of) the one produced by the dominant undertaking and for which there is potential customer demand; and (d) there is no objective justification for the refusal.

The *IMS Health* judgment is not without problems. First, it does not elaborate on what the criteria which decide whether the product is new or not are. How different does it have to be



from the product supplied by the copyright holder? Secondly, should the new product belong to a market which is downstream from the one where the copyright holder is active? Or can it belong to the upstream market? The downstream/upstream conundrum might be indirectly solved by comparing the wording of the Advocate General's opinion with that of the judgment. In his opinion, the Advocate General had said that the aspiring licensee's production of goods or services can be in competition with the right holder but must be different in nature in the sense that it answers a consumer demand which is not satisfied by the existing goods or services. However, the ECJ did not use the same wording; instead, it said that new products are those not offered by the copyright owner for which there is potential demand. The different phraseology points at the conclusion that the new product should be in a different market.<sup>94</sup>

## 5.2 The exceptional circumstances doctrine in the March 2004 Decision

The March 2004 Decision was delivered a few days before the ECJ judgment on *IMS Health*. As already discussed in section 2.2 of this chapter, one of the complaints submitted to the Commission against Microsoft was that in 1998 the latter stopped licensing to Sun interface information (ie specifications for the relevant communications protocols) which allowed Windows for client PCs to communicate with Windows for work group servers; it also stopped supplying it with the interfaces necessary for Microsoft's work group servers to communicate with one another.

In the decision, the Commission said that it applied existing ECJ case law on compulsory licensing, but it did not set out to fit the facts of the case to the exceptional circumstances laid out in *Magill* and *Oscar Bronner*. Instead, it declared that it analysed the entirety of the circumstances surrounding Microsoft's refusal to license the interfaces requested by Sun.

The Commission's assessment of Microsoft's refusal to license entails two interesting points. First, the Commission did not establish in its decision that Microsoft's refusal eliminated all competition in the downstream market for work group server OSs: instead it found that the refusal risked elimination of all competition in that market. Even though Microsoft protested

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<sup>94</sup> Kanter (n 90) 355.



loudly in its appeals against the decision that the exceptional circumstances doctrine requires actual elimination of competition and not speculation of foreclosure of competition in a market, in truth both *Oscar Bronner* and *Magill* had said that is sufficient that elimination of competition is 'likely'. The second point worth underlining is that the Commission held that the value of intellectual property right for which a license is requested is immaterial. Microsoft's arguments that it had invested substantial capital in developing the server interfaces (different parts of which were protected by patents, copyright and trade secrets) and therefore it was justified not to license them did not find any sympathy with the Commission.

The Commission has been criticised for excessively stretching the exceptional circumstances doctrine in *Microsoft*. It remains to be seen how the CFI—which will apply the findings of *IMS Health* to the case—will evaluate the Commission's conclusions when it delivers its judgment on the appeal launched by Microsoft.

### 5.3 The French competition authority's decision in *Apple*

Recently, the French Conseil de la Concurrence (the French competition authority) was called to investigate a case concerning Apple's refusal to license some of its intellectual property to competitors in the industry of online music downloading.<sup>95</sup>

The *Apple* case actually dealt with licensing of patents and trade secrets, but it was decided under the exceptional circumstances doctrine; its findings are therefore of interest as far as refusal to license copyright in software is concerned.

Apple refused to license its FairPlay DRM technology to rival music download retailers. Without this DRM technology, it is impossible to play on an iPod tracks downloaded from online music stores other than iTunes.

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<sup>95</sup> Conseil de la Concurrence, Décision N° 04-D-54 du 9 Novembre 2004 relative à des pratiques mises en oeuvre par la société Apple Computer, Inc. dans les secteurs du téléchargement de musique sur Internet et des baladeurs numériques <<http://www.conseil-concurrence.fr/pdf/avis/04d54.pdf>> (accessed 30 November 2006). See relevant article: G Mazziotti 'Did Apple's Refusal to License

Virgin Mega, which is Apple's rival in the market for music downloads in France, filed in June 2004 a complaint with the Conseil de la Concurrence in which it claimed that the French branch of Apple Computer had abused its dominance in the markets for DRM-protected portable music players by refusing to license its FairPlay DRM technology. More specifically, Virgin alleged that Apple had leveraged its dominance in the market for DRM-protected portable players in the market for music downloads. Virgin requested to be granted a compulsory license of the FairPlay DRM on fair and non-discriminatory terms. It claimed that access to FairPlay was indispensable for achieving interoperability between the tracks it offered and Apple's iPod, which, according to Virgin, was the dominant portable music player in the French market.

Apple's platform allows customers to download legally songs from iTunes Store, an Apple website. Customers can then play these on their PCs using iTunes, one of Apple's media player which can be downloaded for free. Customers can also transfer the songs to an iPod, Apple's portable audio hardware device. iPods can store songs downloaded from the iTunes Store into iTunes as well as songs copied into iTunes from CDs. Interoperability between iTunes and iPods was made possible by FairPlay, a DRM system developed by Apple and which encompassed certain patented interfaces and some secret specifications.<sup>96</sup> FairPlay did not just ensure that only tracks downloaded from the iTunes Store were compatible with iPods. It also ensured that the terms of use set by those owing the copyright to the downloaded music tracks were respected. Tracks downloaded from the iTunes Store have the FairPlay technology encrypted in them and can therefore be played either on iTunes or on iPods. However, tracks downloaded via any other platform (eg Virgin or FNAC—the latter is owned by the largest French retailer of books and electronic products by the same name) did not have FairPlay and were therefore not interoperable with iTunes or iPods.

The Conseil found that Apple was dominant in the market for DRM-protected portable music players. More specifically, it had a 53 per cent market share in the period between June 2003 and May 2004. The Conseil also found that Apple was dominant in the market for music downloads. However, dominance was proven only because the market was defined very narrowly: the market was restricted to platforms which used Apple's business method, ie selling

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Proprietary Information Enabling Interoperability with its iPod Music Player Constitute an Abuse under Article 82 of the EC Treaty?' (2005) 28 *World Competition*.

<sup>96</sup> More specifically, Apple had patented APIs found within FairPlay.

songs and compilations separately. Other music download companies active in the French market offered monthly subscriptions which gave access to libraries of songs and did not allow customers to download individual tracks. Examples of such companies were E-Compil, owned by Universal, and FNAC. The geographical market for music downloads was France. It was easy to define it as internet users could download tracks from the French iTunes Store only if they used a credit or debit card linked to an account in a French bank.

The Conseil cited *Magill*, *IMS Health* and the March 2004 Decision in its decision—however it failed to note that the exceptional circumstances doctrine was applied differently in the latter. The Conseil reached the conclusion that Apple had not abused its dominance. This is how it applied the *IMS Health/Magill* exceptional circumstances doctrine:

**i. Had Apple's refusal to license FairPlay prevented the emergence of a new product or service?**

In its complaint to the Conseil, Virgin Mega did not demonstrate that it was planning to offer a new product or service not already offered by Apple and for which there was a potential customer demand.

**ii. Was Apple's refusal to license its FairPlay DRM technology justifiable?**

Yes. Apple regularly modified and updated FairPlay so that it could cope with possible failures of the security system. If Apple licensed FairPlay to third parties, it would have to monitor how the licensees used the system and whether it functioned properly. Apple would also have to check regularly whether the licensees complied with the agreements signed between Apple and the recording industry.

**iii. Did Apple's refusal eliminate competition in the secondary market for music downloads?**

No. The fact that 15 per cent of tracks downloaded in France were transferred to portable players proved that competition in the market for music downloads did not depend upon the compatibility between downloads and the commercially successful iPod. Another reason why competition in that market was not threatened was that, as mentioned above, more and more portable players compatible with tracks available through Virgin were being released in France.

Furthermore, if Virgin Mega's customers wanted to transfer their tracks to iPods, they were able to do so, though they had to follow a rather complicated method.<sup>97</sup>

## 5.4 The future of the exceptional circumstances doctrine

The recent Commission discussion paper on Article 82 attempts to recapture and solidify the exceptional circumstances doctrine. It stresses that the holder of an intellectual property right is not obliged to license it and that the refusal to license will be considered an abuse only under exceptional circumstances, for instance when it 'prevents the development of the market for which the license is an indispensable input, to the detriment of consumers'.<sup>98</sup> Regrettably, the paper does not make any recommendations regarding the questions left unanswered in *IMS Health*: it does not discuss what constitutes a 'new' product, nor does it clarify whether the new product (which the aspiring licensee wishes to market) should be in a downstream market. However, the paper does say that, when assessing a refusal to license, account should be taken not only of the short-term effect caused by it but also of the medium and long-term effects arising from the exclusion of competitors.

This latter statement echoes the Commission's rationale in finding that Microsoft's refusal to license its interoperability information was an abuse of Article 82. As discussed in section 2.2.1 of this chapter, the Commission had pointed out that it reached this conclusion based on two factors: in the short term, the refusal led to diminished competition in the market for server OSs and therefore restricted customer choice; in the long term, the refusal could potentially result in further suppression of competition in the work group server market, restriction of competition in related markets and further reinforcement of the barrier to entry to the PC OS market—and customer choice in all these markets would of course be restricted as well.

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<sup>97</sup> It was possible to copy tracks to a CD, then copy them on iTunes and eventually transfer them to an iPod.

<sup>98</sup> DG Competition 'Discussion Paper on the Application of Article 82 to Exclusionary Abuses' (December 2005) <<http://ec.europa.eu/comm/competition/antitrust/others/discpaper2005.pdf>> (accessed 21 March 2006) para 239.

It is submitted here that this approach towards assessing refusals to license by a dominant undertaking is well-suited to the software industry. When a software developer refuses to license the copyright protecting the source code which underlies the interfaces of his widely popular computer program, the implications are rather more serious than those arising when a television broadcaster refuses to license his copyright in channel listings. Interoperability is the key to growth in the software industry, especially when it comes to interoperability with a computer program (such as Windows for PCs) which has become the industry standard. In short, dominant software proprietors who refuse to license (parts of) their computer programs should be judged by applying a far-reaching version of the exceptional circumstances doctrine, a version which looks at both the short and long term effects of the refusal.

As already mentioned, the Commission's discussion paper on Article 82 offers no guidance as to whether one of the conditions for compulsory licensing is that the refusal to license would prevent the emergence of a new product in a market which is downstream or upstream from the one where the right holder is active; nor does the discussion paper elaborate on what constitutes a 'new' product. It is submitted here that it is not necessary that the aspiring licensee is, or wants to become, active in a market different from the one in which the reluctant licensor is active. In the field of software production, where interoperability is of utmost importance, imposing such a condition would gravely endanger the emergence of new products and would deprive consumers from choice. Microsoft's behaviour illustrates this in an excellent manner. Microsoft was active in the same market (that of work group servers) as Sun, the company that had been denied access to the crucial server to server and server to client interoperability information. If Microsoft were allowed to continue to refuse this information to any company active in the server market (which is exactly what Microsoft was doing prior to the March 2004 Decision<sup>99</sup>), it would eventually achieve a complete and unbreakable monopoly in the work group server market.

Rather than require that the aspiring licensee plans to become or already is active in a downstream/upstream market, importance should be placed on whether the product he wants to market is genuinely new and not just an imitation of the product the intellectual property holder is already offering. Admittedly, it is difficult to establish a set of workable 'novelty' criteria. However, factors determining novelty should include the features of the new product, the

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<sup>99</sup> March 2004 Decision paras 194-198.



existence or potential of genuine consumer demand for it, and the intensity of such a demand. For instance, Virgin Mega wanted to use Apple's FairPlay DRM technology so as to provide a music downloading service which did not really offer any new or superior features compared to Apple's iTunes Store: the Conseil de la Concurrence was right to find that Apple was not obliged to license FairPlay. On the other hand, in *IMS Health* the claimant argued that it wanted to create a pharmaceutical data collection system which would offer a wider spectrum of data plus on-line access to that data: arguably, that was indeed a new product with features desirable to pharmaceutical companies and lacking from IMS Health's product.

## 6 CONCLUSION

This chapter has offered a comprehensive overview of how Article 82 has been applied to software distribution and copyright licences by the Commission and the ECJ. It has also, in places, offered suggestions on how this application could be modified to better suit the special characteristics of the software industry.

The first aspect of dominance abuse examined was tying. Microsoft's practice of tying Internet Explorer and WMP to its dominant OS platform provided ample material in the discussion of this business practice in the context of software products. Particular gravity was given to the fact that tying is very common in computer programs—after all, each computer program is in itself a bundle of other smaller programs. Due to this particular characteristic of computer programs, it is difficult to establish if the tied and the tying software are separate products for which there is commercial demand. It was submitted that when assessing tying of computer programs, rather than focusing on whether they are separate, it is more useful to focus on the short- and long-term effects the tying has on the market of the tied product. This is exactly what the Commission did in its March 2004 Decision and it is a method appropriate for the software industry, where market conditions can change rapidly. Additionally, it has been demonstrated that it is difficult for a dominant undertaking to justify its choice to tie two different pieces of software together and therefore oblige consumers to buy them together: the Commission rejected Microsoft's arguments that tying WMP to Windows created market efficiencies. In the Commission's view, Microsoft was simply promoting its own business strategies.

Arbitrary refusal to license a computer program or parts thereof was the other issue explored at length in this chapter. It is an issue which illustrates clearly the constant friction between

copyright and competition law. Even though copyright holders have the exclusive right to decide to whom they will license their copyright or to decide not to give any licences at all, the exercise of this very exclusive right can artificially protect a dominant position acquired through the copyright in question; it can also leverage dominance in one market into other neighbouring markets.

The doctrine of exceptional facilities—the mechanism devised by the ECJ to decide whether a dominant undertaking should be forced to license its copyright—is far from perfect. Many issues have not been resolved: When is copyright indispensable for entering a market? Can this market be the same one where the copyright holder is active? Or can it only be a downstream market? However, a positive aspect of the exceptional circumstances doctrine is that the ECJ had found that circumstances so far identified in particular cases (for instance in *Oscar Bronner* or in *Magill*) are sufficient but not necessary for compulsory licensing to take place. This means that the doctrine is flexible enough to be applied to different cases. Additionally, those in support of healthy competition conditions in the European software industry take comfort in the Commission's view (expressed in its 2005 paper on Article 82) that a refusal to license may violate Article 82 even when the market affected has not been foreclosed by the time the refusal is evaluated by a competition authority. The Commission believes it is important that the effects on the market are assessed on a short- and long-term basis.

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## 6 CONCLUSION

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In the preceding chapters we examined in detail the Community's regime for the legal protection of computer programs as well as the application of Community competition rules to agreements which exploit computer programs.

The 1991 Software Directive<sup>1</sup> was aimed at strengthening and expanding the European software industry, which at the time was anaemic compared to its counterparts in the USA and Japan. It introduced a strong and harmonised software copyright, which afforded software producers legal certainty regarding their author rights; it also encouraged—to a certain extent—innovation by allowing competitors to decompile existing computer programs, particularly popular ones hailing from the USA. But the Software Directive has fallen short of creating an industry competitive on an international level. As mentioned in chapter 2, in 2005 only three of the world's 20 most valuable software companies were based in Europe, while there is a growing tendency for European firms to be taken over by US ones. This thesis submits that a significant factor contributing to the software industry's lacklustre performance is that legal protection of computer programs in the EU is too strong; and that vigorous application of EC competition rules to software copyright licences would further promote innovation, lead to greater consumer choice and contribute to the industry's growth.

In chapters 4 and 5 we discussed at length the application of Articles 81 and 82 EC Treaty to software licences. It has been shown that Article 81 and software licences have a somewhat mysterious relationship: even though the 2004 Regulation on technology transfer agreements<sup>2</sup> has offered a roadmap as to how certain types of licences should be formulated in order to avoid frustrating Article 81, the lack of available ECJ case law and Commission Decisions creates uncertainty as to when other types of licences breach Article 81. On the other hand, the

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<sup>1</sup> Council Directive 91/250 of 14 May 1991 on the legal protection of computer programs [1991] OJ L122/42.

<sup>2</sup> Commission Regulation (EC) 772/2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements [2004] OJ L123/11.

application of Article 82 on software licences has been well documented in Community jurisprudence: even though many questions remain unanswered in the context of tying and compulsory licensing, Microsoft's legal adventures in Europe have provided excellent bedtime reading for dominant software producers who consider imposing anti-competitive terms to their licensees, or refuse to license their products.

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